CLOSURE PLAN
PRESENT DRUM STORAGE FACILITY

UNION PACIFIC RAILROAD
DUPO, ILLINOIS RAIL YARD

FOR SUBMITTAL TO
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

Prepared by
USPCI, Inc.
Consulting Services
5665 Flatiron Parkway
Boulder, Colorado 80301

USPCI Project No. 91275
April 7, 1993

Closure Plan Certification Statement

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

ILD984774851	Present Drum Storage Facility Union Pacific Railroad Company Dupo, Illinois Rail Yard
USEPA ID Number	Facility Name
R.L. Eades	R.L. Eades Dir. Site Remediation
Signature of Owner/Operator	Name and Title
4/12/93	
Date	

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1. INTRODUCTION

This report presents the closure plan for the Present Drum Storage Facility at the Union Pacific Railroad (UPRR) rail yard in Dupo, Illinois. A total of 114 drums, containing liquids and soils contaminated with pentachlorophenol (PCP) are stored at the facility. The drums originated from a March 1990 spill and emergency cleanup at the UPRR Mitchell rail yard near Collinsville, Illinois. A later, more extensive cleanup of the Mitchell rail yard was conducted by USPCI from February 11, 1991 through March 4, 1991. As in the initial cleanups, soil was excavated from the contaminated areas, drummed and labelled, and transferred to the Dupo site.

Pentachlorophenol is a listed hazardous waste, carrying the USEPA waste code number F027. As a result of the spill of PCP, soil was contaminated with this substance and is considered to be a hazardous waste by the "mixture" rule (40 CFR Part 261.3(a)(2)(iii)). Effective November 8, 1988 F027 waste was prohibited from land disposal without prior treatment (40 CFR Part 268.31(a)). At the present time, no facility is permitted by the EPA to treat or dispose of F027 waste. Therefore the drums have been secured in the Present Drum Storage Facility until such time as the waste may be properly disposed.

This closure plan has been prepared following the "Instructions for the Preparation of Closure Plans for Interim Status RCRA Hazardous Waste Facilities" (December 11, 1990), obtained from the Illinois Environmental Protection Agency (IEPA) Division of Land Pollution Control. Closure activities are anticipated to begin when the drums are removed from the Dupo, Illinois rail yard.

2. DESCRIPTION OF FACILITY

The Present Drum Storage Facility is located at the UPRR rail yard (Standard Industrial Code 4011), in Dupo, Illinois. The location of the rail yard is shown in Figure 1, and the location of the Present Drum Storage Facility within the rail yard is shown in Plate 1.

Generally, the facility consists of four semi-trailers (8 feet wide x 45 feet long) placed on a concrete slab within a fenced area restricted from public access. The drums are arranged on wooden pallets inside the trailers.

The principle design features of the facility are as follows:

- The trailers are placed on a level concrete slab that is surrounded by an 8-inch concrete curb. The trailers remain locked at all times, except to conduct weekly inspections.

- The total area covered by the storage facility is approximately 62 feet long and 62 feet wide.

- A minimum of two feet of aisle space exists between trailers and between the fence and the trailers.

- Three trailers are utilized to store the drummed waste. Empty overpack drums are stored in the fourth trailer. The overpack drums are to be used in the event of damage, spills, or other unforseen circumstances.

- Drums containing solid material are stored on pallets, approximately evenly divided between two trailers, and single stacked with a 2 foot aisle space in between drum rows.

- Drums containing liquid material are stored in a separate trailer, single stacked on pallets, with a 2 foot aisle space between drum rows.

- The floors of all trailers are covered with 40 mil high density polyethylene (HDPE). Each liner extends a minimum of 12 inches up the sidewall of the trailer.

- An 8-foot chain link fence topped with three strands of barbed wire surrounds the entire slab. A singe access gate is locked at all times. Signs are posted on the fencing with the warning "Danger - Hazardous Waste Storage Area - Unauthorized Personnel Keep Out". National Fire Protection Association Hazardous Materials Classification placards are also posted on the fence.

3. Description of Waste Management Units

The Present Drum Storage Facility is the only waste management unit addressed in this closure plan. It contains a total of 114 drums. The drums were known to have contained the following constituents:

1) Pentachlorophenol Oil (EPA waste code F027) S01 - 170 gallons
2) Pentachlorophenol contaminated soil (EPA waste code F027) S01 - 26 cubic yards
3) Pentachlorophenol contaminated rainwater (EPA waste code F027) S01 - 495 gallons

No Part A Application has been submitted for this waste management unit.

4. Map of Facility

Maps showing the location of the Dupo rail yard, and the location of the facility within the rail yard are included as Figure 1 and Plate 1. The Dupo rail yard is located in Section 21 of Township 1 North, Range 10 West in St. Claire County, Illinois.

5. Detailed Drawing of Hazardous Waste Management Unit

Four figures are provided. The drum storage facility plan is presented in Figure 2, which identifies the four trailers and the drum staging program. Figures 3 and 4 detail the spacing for drums containing soil and liquid within each trailer. Figure 5 shows the concrete slab construction.

6. Storage Area Pavement Description

The storage area consists of four trailers and a concrete slab. The details of the slab construction are shown in Figure 5. In general, the slab covers an area 62 feet by 62 feet, and is sloped such that incidental water drains to one end and is collected in a 5-gallon sump. Two expansion joints were placed at the centerline of the slab to allow for shrinkage and expansion. The joints were filled with Sonneborne SL1 caulking. The concrete surface is covered with an epoxy sealant to limit water infiltration. An 8-inch curb surrounds the slab to provide secondary containment. A concrete ramp was constructed at one side of the slab to allow equipment transfer of the drums. The slab was constructed in December, 1992 and is currently in excellent condition with no evidence of cracks or holes.

7. Inventory of Hazardous Waste

As reported in Section 3, the inventory of hazardous waste stored at the facility is as follows:

Pentachlorophenol Oil (EPA waste code F027) - 170 gallons
Pentachlorophenol contaminated soil (EPA waste code F027) - 26 cubic yards
Pentachlorophenol contaminated rainwater (EPA waste code F027) - 495 gallons

The inventory has been unchanged since the facility was constructed.

8. Schedule for Closure

The schedule for closure will begin when the drums are removed from the area to a facility permitted to treat and/or dispose of the F027 wastes. At this time no facility for treatment or disposal of F027 waste exists. This closure plan will be completed within 180 days of removal of the drums.

9. Air Emissions

No detectable air emissions are anticipated during the implementation of this closure plan. All contaminated material is expected to remain contained within the drums. The Health and Safety Plan provided in Appendix A outlines the measures that will be undertaken to protect human health from potentially dangerous air emissions.

10. Personnel Safety and Fire Prevention

A Visitor Log will be maintained at the site for the period of field work described in this closure plan. All visitors to the site will be directed to read and sign the Visitor Log and Health and Safety Plan. No unauthorized personnel will be allowed on the work site. Additional information regarding personnel safety is addressed in the Health and Safety Plan attached as Appendix A.

11. Decontamination of Tanks, Structures and Soils

Several layers of containment have been designed for the Present Drum Storage Facility. First, the PCP-contaminated materials are contained in the drums and overpacks. Second, the drums are placed on wooden pallets that are underlain by a 40-mil HDPE liner. The entire drum/liner system is contained within secured trailers. Finally, each trailer is located on an epoxy sealed concrete slab that is surrounded by an 8-inch containment curb.

It is expected that all PCP-contaminated materials will remain contained within the drums. The drums will be disposed of, along with the PCP-contaminated materials, at a facility that is approved to handle F027 waste. This decontamination plan is presented in the unlikely event that there is any leakage from the drums.

Possible routes of contamination by means of leakage from the drums include 1) drum-to-HDPE liner, 2) HDPE liner-to-trailer, 3) trailer-to-concrete slab, and 4) concrete slab-to-soil. The entire storage facility is inspected on a weekly basis for leakage by these routes.

If evidence indicates drum leakage to the HDPE liner, the potentially leaking drums will be overpacked and the location of possible spillage will be marked on the HDPE. Prior to removal of the drums from the trailers for final closure, the drums will be inspected to ensure that the contents are intact. If there is any evidence of leakage to the HDPE liner in the trailer, the location for possible spillage will be marked on the liner and the drums will be overpacked prior to moving.

If there is no evidence of drum leakage in the trailer, then the HDPE liner from that trailer will be disposed of in a solid waste landfill, and the trailer will be considered uncontaminated and ready for other use. If there is any evidence of drum leakage then any liquid found on the liner, or if no liquid remains, a piece of the liner itself (in the visibly most contaminated area) will be cut out and sent for analysis. If detectable levels of PCP are found in the liquid, or on the concrete slab, then the HDPE liner will be sent for disposal at the F027 waste disposal site.

If a determination is made that the liner is contaminated, based on the laboratory analyses described in Section 13, the liner will be carefully inspected for any tears or holes. If no holes or tears are found, then the trailer will be considered uncontaminated and ready for other use. If any liner is found to be contaminated, and has tears or holes, then the trailer will be considered contaminated and will be thoroughly steam cleaned. The water used for steam cleaning will be collected and field screened for PCP (using Ensys PENTA RIS[c] or equivalent). Information regarding the PCP field screening is included in Appendix B. If the water contains detectable levels of PCP it will be disposed of at a facility permitted to treat PCP-contaminated water. If PCP cannot be detected in the water, then the water will be discharged directly on the ground adjacent to the slab.

While the facility is used for storage of PCP-contaminated materials, water collected in the concrete sump will be sampled prior to disposal to ensure that it does not contain PCP. If detectable levels of PCP are found, or if there is any visible evidence that material has leaked out of the trailers, then upon closure of the storage area the concrete slab will be steam cleaned. The water used for steam cleaning will be collected and sampled using Ensys PENTA RIS[c] or equivalent. If PCP is detected in the water it will be disposed of at a facility permitted for treatment or disposal of PCP-contaminated water. If PCP cannot be detected in the water, then the water will be discharged directly on the ground adjacent to the slab.

The concrete slab was constructed in December 1992, and is currently in excellent condition. If, however, there is any evidence that the slab has been contaminated, i.e. PCP is ever detected in the water collected from the slab, or if there is visible staining, then the slab will be inspected for cracks. If cracks are found, then a sample of concrete and surficial soil will be collected beneath each crack in the slab and analyzed for PCP. The PCP cleanup level in the soil is 20 ppm. If concrete or soil is found above that concentration then it will be excavated and properly disposed.

Unless it is necessary to remove portions of the slab to allow for the excavation of contaminated soil, the slab and fence will remain in place after the closure of the facility.

12. Soil Cleanup Levels

In the unlikely event that soil cleanup is required, the soil cleanup level of 20 ppm PCP previously required by the IEPA during the Mitchell rail yard cleanup will be utilized for this closure plan. It is noted that this cleanup level is conservative in comparison to the risk based cleanup level proposed by the EPA (Proposed Subpart S, 40 CFR Part 264, in the Federal Register, July 27, 1990). The EPA proposes a soil cleanup value for PCP in soils of 2,000 ppm.

13. Sampling Plan and Analytical Methods

During closure of the Present Drum Storage Facility analyses of the HDPE liner for PCP may be required[1].

14. Contaminated Soil Removal

Other than the material contained in the drums, soil removal is not anticipated as part of the required closure activities. If soil removal is required, the sequence of remediation would consist of: 1) marking areas requiring excavation, 2) excavating PCP-contaminated soil, 3) drumming excavated material, 4) confirmatory soil sampling and analysis by EPA SW-846 Method 8270, and 4) backfilling

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[1] No method for analysis of the HDPE liner has been specified for the following reasons:

- The EPA is in the process of publishing sampling methodologies for contaminated debris; different EPA regions do not currently have a consensus as to appropriate sampling methodologies for debris impacted with RCRA regulated hazardous constituents.
- The EPA's RCRA Test Methods Manual (SW-846, Third Edition, 1987) has seen several re-issues since the implementation of RCRA. It is possible that yet another edition may be written and approved prior to the closure of this facility. A sampling method which is proposed now could be outdated by the time this facility is closed, and a different sampling methodology required by the operating permit of a TSDF permitted to accept F027 wastes for disposal.

Therefore, it is proposed that, the selection of sampling methodology and analytical techniques for analytical data generated from UPRR Dupo debris, be chosen (with IEPA approval) at the time the wastes are prepared or disposal.

the excavation with clean soil. The area locations and depths of excavation would be included in a final site survey. Soil will be disposed of at a facility permitted to accept F027 wastes.

15. Disposal of Hazardous Wastes and Cleanup Residues

The PCP-contaminated material stored on-site will be removed when a permitted facility for the treatment and/or disposal of F027 wastes is available. No such facility exists at this time. Refer to Section 11 for disposal of non-hazardous materials.

16. Disposal Unit Closures

Not applicable to this site. No wastes will be left in place.

17. Description of Equipment Cleaning

No equipment is anticipated to be in contact with any PCP-contaminated material. All of the PCP-contaminated material is expected to remain contained within the drums. Should sample collection tools or drum moving equipment come in contact with PCP-contaminated material, it will be thoroughly cleaned with soap and water prior to leaving the Contamination Reduction Zone (CRZ). The CRZ will be located directly adjacent to the Exclusion Zone (EZ), which will be the entire Present Drum Storage Facility. Additional information regarding decontamination site control measured is provided in the Health and Safety Plan of Appendix A. Heavy equipment in contact with PCP-contaminated materials, will be steam cleaned. All water from the cleaning activities will be collected in an area lined with Visqueen and field screened for PCP using Ensys PENTA RIS^{c} field kit, or equivalent. Water containing detectable levels of PCP, will be retained in drums and properly disposed at a facility that is permitted to treat or dispose of PCP-contaminated material.

18. Certifications and Reports

The closure of this hazardous waste management unit will be certified by an independent professional engineer registered in the State of Illinois. After closure is completed, a professional engineer will provide certification of the activities within 60 days of completion. Since the start of closure activities is dependent upon the availability of an EPA permitted facility for the treatment and/or disposal of F027 waste, closure and certification may not be completed within 240 days of the date of closure plan approval (as required in Section 19 of the "Instructions for the Preparation of Closure

Plans for Interim Status RCRA Hazardous Waste Facilities"). It is not possible to determine when implementation of the closure plan will begin.

The independent engineer will be present at all critical major points during the closure, including the inspection of the drums prior to removing them from the trailer, the inspection of the HDPE liner, the collection of samples from the liner or from any liquids found on the liner (if performed), the inspection of the concrete slab for cracks (if performed), and the collection of soil samples (if performed).

A Closure Documentation Report will be submitted within 60 days of closure to document the closure activities. This report shall include:

- The volume of waste and waste residue removed, including the waste resulting from decontamination activities;
- A description of the method of waste handling and transport;
- Waste manifest numbers or copies of manifests from removal of waste and waste residues;
- A description of the sampling and analytical methods used, including sample preservation and chain-of-custody methods;
- A chronological summary of closure activities;
- Color photo documentation of closure showing the unit before, during and after closure; and
- Tests performed, methods and results.

This will be a final closure so no cost estimate and financial assurance instruments will be submitted with these closure documents.

19. Status of the Facility After Closure

No treatment, storage or disposal of hazardous wastes will occur at this facility after closure.

20. PART A MODIFICATION AND WITHDRAWALS

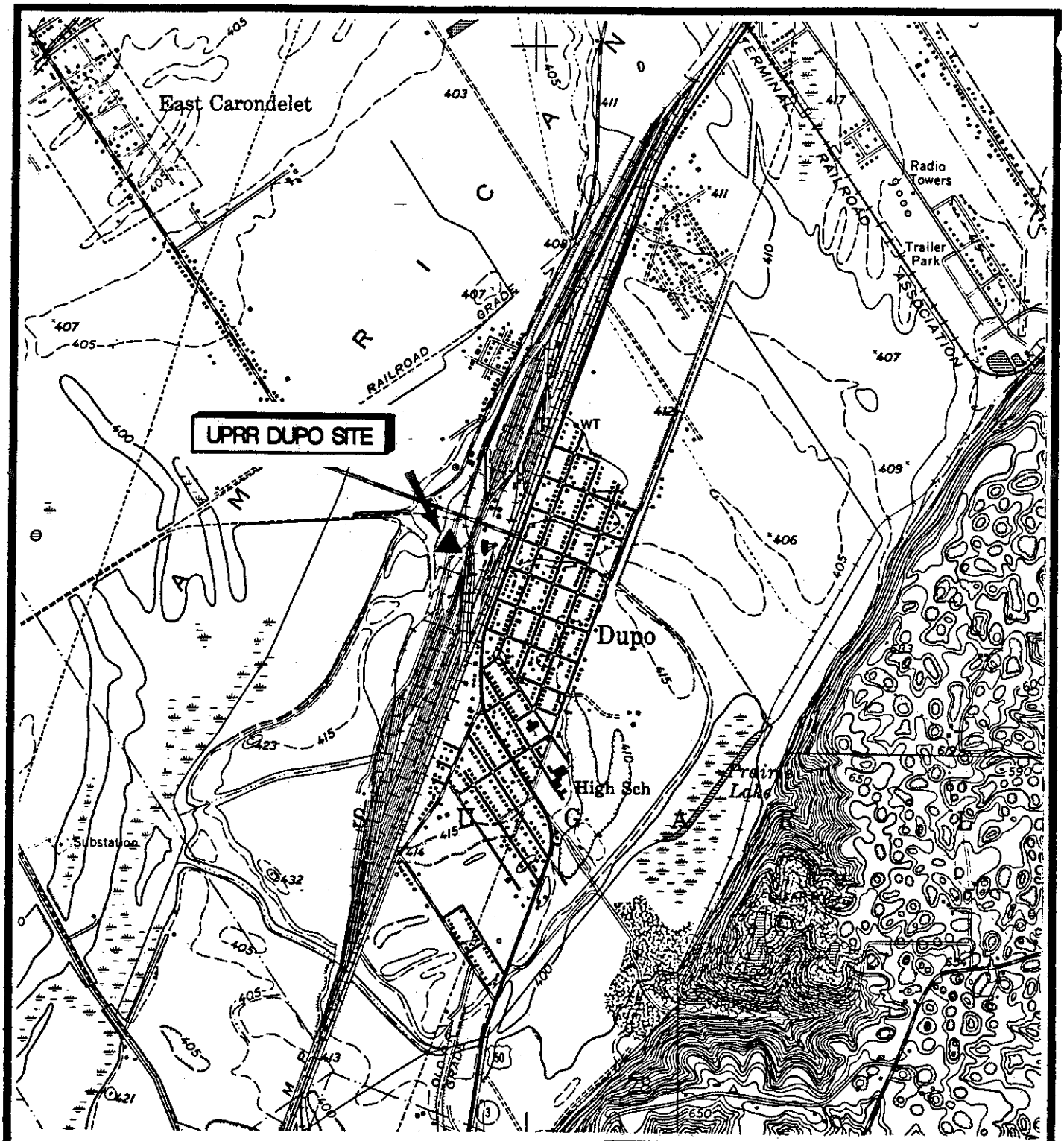
Not applicable. No Part A application has been submitted for this facility.

21. POST-CLOSURE CARE

No Post-Closure Care is planned for this storage area. All hazardous wastes will be removed from this facility. This facility is not a surface impoundment, landfill, land treatment unit, or waste pile unit.

22. LOCATION DOCUMENTATION FOR DISPOSAL UNITS

Not applicable. There were no disposal units at this facility.



ILLINOIS

QUADRANGLE LOCATION

North

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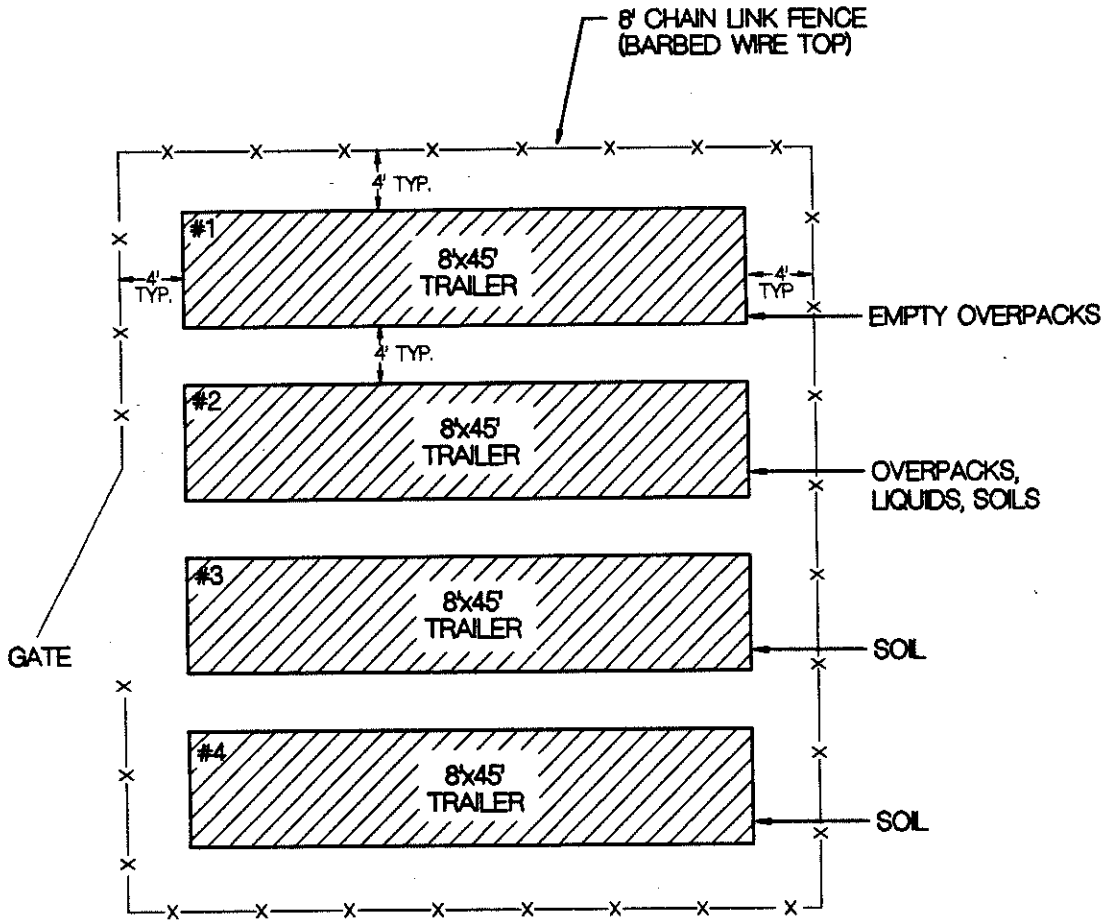
FIGURE 1
SITE LOCATION MAP

SCALE:	DRAWN/DATE	APPROVED
1"=2000' APPROX.	3/93	



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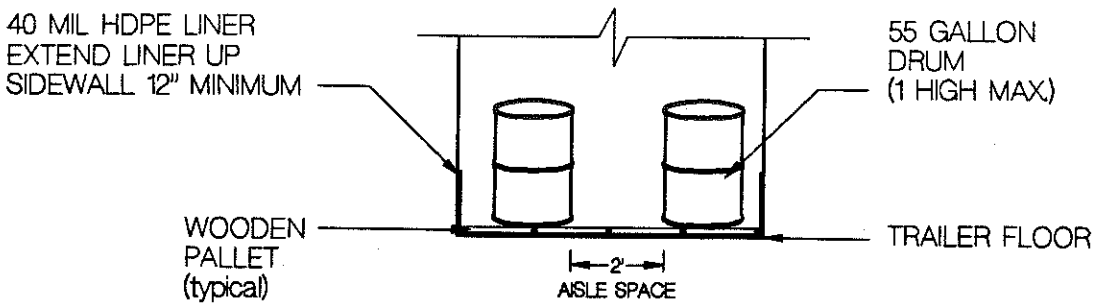
UPRR - DUPO, ILLINOIS

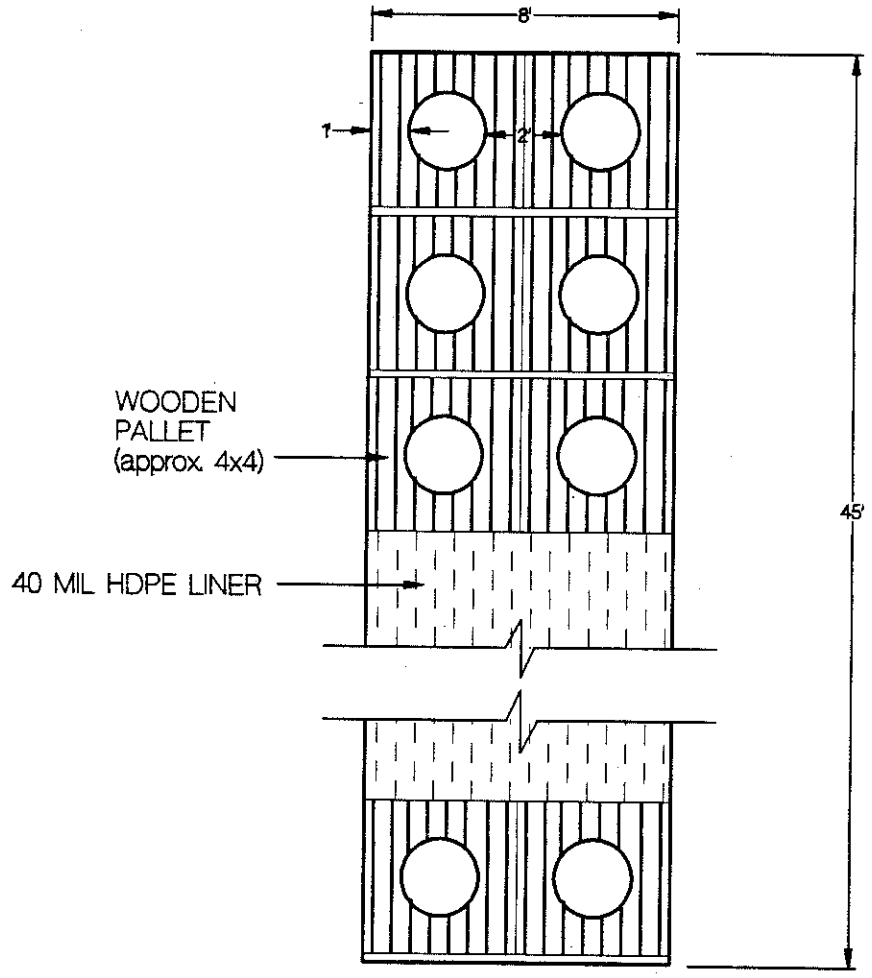
FIGURE 2
PRESENT DRUM STORAGE FACILITY
FACILITY PLAN

SCALE:	APPROVED/DATE
NTS	2/93

91275-01

ELEVATION VIEW





PLAN VIEW

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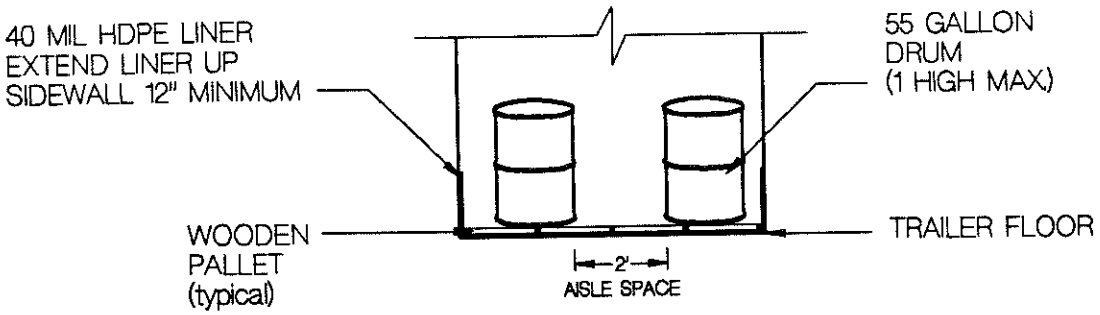
UPRR - DUPO, ILLINOIS

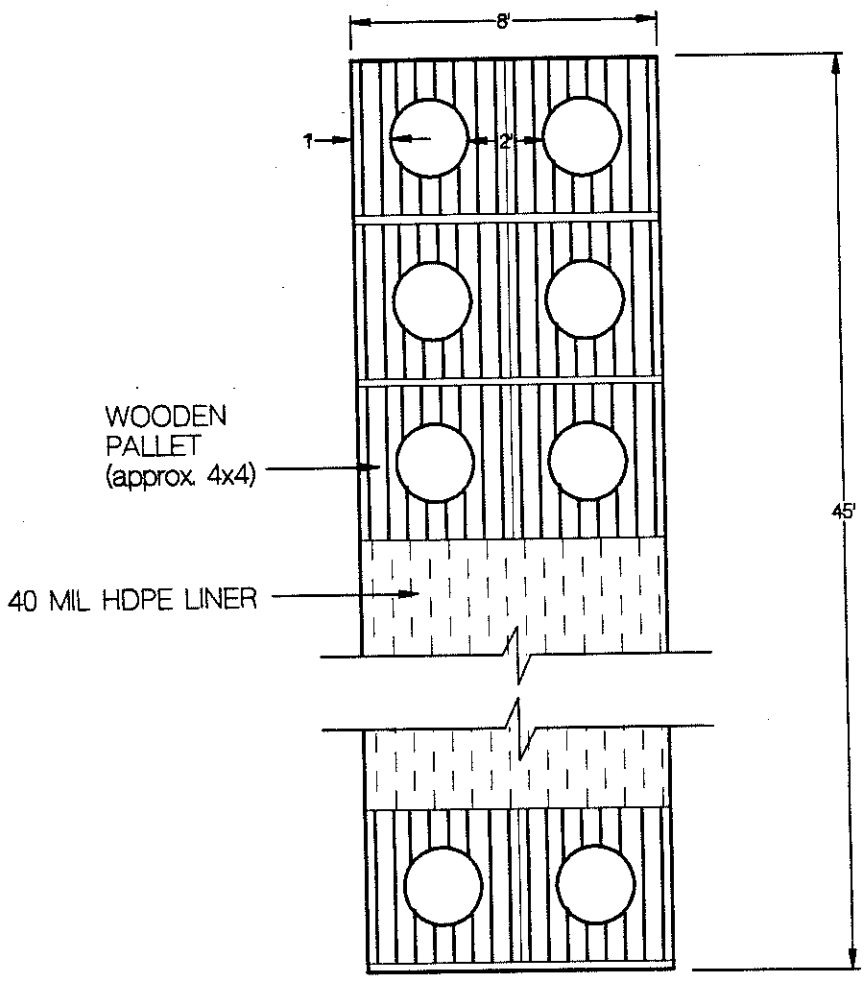
FIGURE 3
PRESENT DRUM STORAGE FACILITY
STORAGE DETAIL (SOIL)

SCALE	APPROVED/DATE
AS INDICATED	2/93

91275-02

ELEVATION VIEW





PLAN VIEW

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FEET

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UPRR - DUPO, ILLINOIS

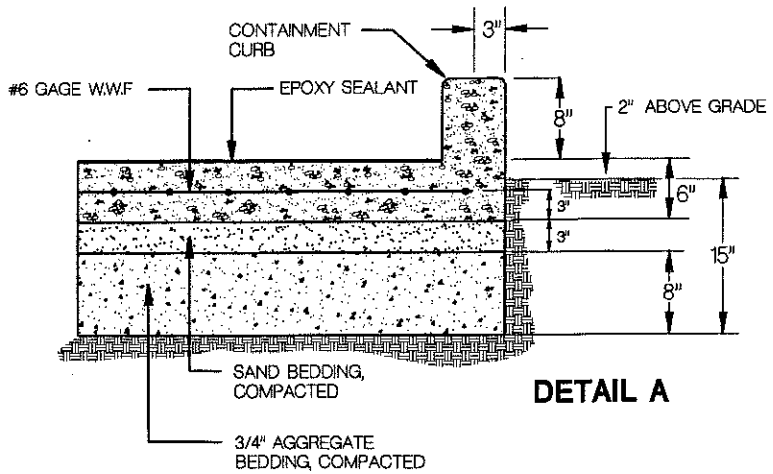
FIGURE 4
PRESENT DRUM STORAGE FACILITY
STORAGE DETAIL (LIQUID)

SCALE: AS INDICATED | APPROVED/DATE: 2/93

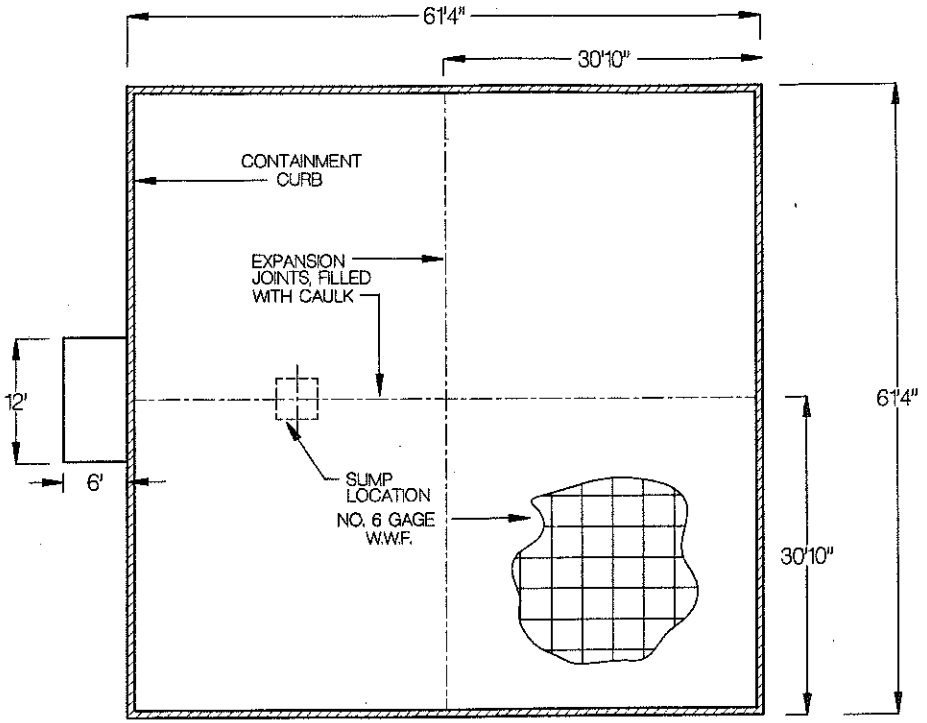
91275-93

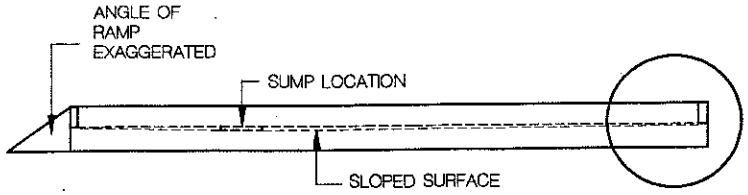
GENERAL NOTES:

1. All concrete shall conform to building code requirements from Reinforced Concrete (ACI 318-89) and the following general notes.
2. Soil shall be excavated to a minimum depth of 1'-3" in an area 62'-0" x 62'-0".
3. 3/4" aggregate bedding shall be placed and compacted to a minimum thickness of 0'-8" as shown in Detail "A".
4. Sand bedding shall be placed over the aggregate bedding and compacted. Final depth of excavation shall be a minimum of 0'-4".
5. Concrete shall be proportioned with Type II modified, Portland Cement, and the appropriate admixture of water to provide a minimum compressive strength of 3,500 psi at 28 days.
6. Metal reinforcement shall be No. 6 (6-6-6) gage Welded Wire Fabric.
7. Reinforcement shall have a minimum 3 inch concrete cover.
8. Concrete surface shall be sloped such that all incidental water collects in one corner as shown in Figure 5; minimum surface slope of 1/2 degree.
9. Sump shall be placed as designated for incidental water collection with a minimum capacity of 5 gallons.
10. The concrete surface shall have a "broom" finish.
11. Two expansion joints shall be placed each way at the centerline of the pad to a depth of 0'-6", as shown in Figure 5.
12. The entire length of joints shall be filled with caulking to 1/2" x 1/2". Caulk shall be Sonneborne SL1.
13. Containment curb, not to exceed 0'-8" shall be placed monolithic around the pad.
14. Visqueen, wet burlap bags, or white curing compound shall be placed/sprayed on the pad during curing time.
15. Ramp shall be placed the edge of the pad as shown in Figure 5. Minimum length shall be 6'-0" and minimum width shall be 12'-0".
16. The concrete surface shall have an epoxy sealant.



DETAIL A





SEE DETAIL A

	BY	DATE
DRAWN	JRH	2/93
CHECKED		
APPROVED		
APPROVED		
APPROVED		

North

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FIGURE 5
PRESENT DRUM STORAGE FACILITY CONCRETE SLAB

SCALE: AS NOTED
DWG. NO.: 91275-06

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1. INTRODUCTION

This report presents the closure plan for the Former Drum Storage Area at the Union Pacific Railroad (UPRR) rail yard in Dupo, Illinois. The area had been used as temporary storage for 114 drums containing liquids and soils contaminated with pentachlorophenol (PCP) from approximately March 1990 to December 1992. The drums originated from a March 1990 spill and emergency cleanup at the UPRR Mitchell rail yard near Collinsville, Illinois. A later, more extensive cleanup of the Mitchell rail yard was conducted by USPCI from February 11, 1991 through March 4, 1991. As in the initial cleanups, soil was excavated from the contaminated areas, drummed and labelled, and transferred to the Dupo site.

Discarded unused formulations of pentachlorophenol classify as listed hazardous wastes, carrying the USEPA waste code number F027. As a result of the spill at the Mitchell rail yard, PCP-contaminated soil is considered to be a hazardous waste by the "mixture" rule (40 CFR Part 261.3(a)(2)(iii)). Effective November 8, 1988, F027 waste was prohibited from land disposal without prior treatment (40 CFR Part 268.31(a)). At the present time, no facility is permitted by the EPA to treat or dispose of F027 waste. The drums are currently stored at the Present Drum Storage Facility, a secured area also located at the Dupo rail yard.

This closure plan has been prepared according to the "Instructions for the Preparation of Closure Plans for Interim Status RCRA Hazardous Waste Facilities" (December 11, 1990),obtained from the Illinois Environmental Protection Agency (IEPA), Division of Land Pollution Control. The closure activities are anticipated to begin in August 1993, after final approval of the closure plan by the IEPA.

2. DESCRIPTION OF FACILITY

The Former Drum Storage Area is located at the UPRR rail yard (Standard Industrial Code 4011), in Dupo, Illinois. The location of the rail yard is shown in Figure 1, and the location of the Former Drum Storage Area within the rail yard is shown in Plate 1.

The Former Drum Storage Area is approximately 60 feet by 30 feet. The area is located approximately 25 feet east of railroad tracks leading to the Repair Shop. Originally, the drums had been placed directly on the ground surface. The drums remained in the area for approximately 34 months, at which time all drums were transferred to a nearby secured storage facility. The location of the Present Drum Storage Facility is also shown in Plate 1, approximately 600 feet west of the Former Drum Storage Area. It is comprised of a concrete slab and four trailers designed to contain the drums. Presently, the Former Drum Storage Area does not contain any drums and is restricted from access by orange fencing.

3. Description of Waste Management Units

The Former Drum Storage Area is the only waste management unit addressed in this closure plan. It formerly contained a total of 114 drums. The drums were known to have contained the following constituents:

1) Pentachlorophenol Oil (EPA waste code F027) S01 - 170 gallons
2) Pentachlorophenol contaminated soil (EPA waste code F027) S01 - 26 cubic yards
3) Pentachlorophenol contaminated rainwater (EPA waste code F027) S01 - 495 gallons

No Part A Application has been submitted for this waste management unit.

4. Map of Facility

Maps showing the location of the Dupo rail yard, and the location of the facility within the rail yard are included as Figure 1 and Plate 1. The Dupo rail yard is located in Section 21 of Township 1 North, Range 10 West, in St. Claire County, Illinois.

5. Detailed Drawing of Hazardous Waste Management Unit

Figure 2 presents a recent photograph, dated January 5, 1993, which shows how the present area is barricaded and free of drums. A plan view of the area as it presently exists is shown in Figure 3.

6. Storage Area Pavement Description

The Former Drum Storage Area is located in a flat, low lying area situated between railroad tracks and a service road. The railroad tracks and road are approximately two feet higher in elevation on each side of the waste management unit, thereby acting to contain surface water. The area is comprised of gravel and ballast overlying soil, and contains grasses and weeds. A single wooden pallet and metal box (approximately 4 feet x 4 feet) remain in the area.

7. Inventory of Hazardous Waste

At present, no hazardous wastes are stored in the Former Drum Storage Area. The drummed wastes have been transferred to the Present Drum Storage Facility, also located at the Dupo rail yard. Soils within the waste management unit may contain constituents of Pentachlorophenol Oil (EPA waste

code F027). Sampling will be conducted within the waste management unit to evaluate the presence of PCP in the soils. For this closure plan, a hazardous waste is considered to include PCP-contaminated soil that exceeds the cleanup level.

8. Schedule for Closure

Closure is anticipated to begin upon formal approval of this closure plan by the IEPA. The closure activities will begin with soil sampling and analysis for PCP. The necessary actions for closure, based on the sample results, will be completed as described in this closure plan within 180 days of IEPA approval. A schedule of the anticipated field work and reporting activities is provided in Appendix A. It should be noted that the task durations in the schedule are presented as working days, rather than calendar days. Therefore, the 65 working day document review duration corresponds to the 90 calendar day duration required by the IEPA. Based on the durations presented in Section 25 of the "Instructions for the Preparation of Closure Plans for Interim Status RCRA Hazardous Waste Facilities" this schedule assumes the following document review times: a 90-day draft closure plan review period by the IEPA; 30-day closure plan modification and finalization period; and a 60-day final closure plan review period prior to IEPA issue of a formal closure plan approval.

9. Air Emissions

No detectable air emissions are anticipated during the implementation of this closure plan. If necessary, the soil within the area will be wetted with water to control fugitive dust during the sampling event. Particulate levels will be continuously monitored with MINIRAMs. The Health and Safety Plan provided in Appendix B outlines the measures that will be undertaken to protect human health from potentially dangerous air emissions.

10. Personnel Safety and Fire Prevention

A Visitor Log will be maintained at the site for the period of field work described in this closure plan. All visitors to the site will be directed to read and sign the Visitor Log and Health and Safety Plan. No unauthorized personnel will be allowed on the work site. Additional information regarding personnel safety is addressed in the Health and Safety Plan attached as Appendix B.

11. Decontamination of Tanks, Structures and Soils

Two items remain in the Former Drum Storage Area: 1) a wooden pallet, and 2) a metal box, approximately 4 feet x 4 feet. The wooden pallet will be cut up, packed in a drum, and stored in the Present Drum Storage Facility. The metal box will be cleaned with soap and water. Sampling tools and equipment in contact with PCP-contaminated material will also be decontaminated with soap and water. All rinse water will be collected in an area lined with Visqueen and field screened for PCP using Ensys PENTA RIS[c], or equivalent (See Appendix C for information). Water containing detectable levels of PCP will be retained in drums at the Present Drum Storage Facility until it can be properly disposed at a facility that is permitted to treat or dispose of PCP-contaminated material. The volume of PCP-contaminated water is not expected to exceed 100 gallons.

12. Soil Cleanup Levels

The soil cleanup level of 20 ppm PCP previously required by the IEPA during the Mitchell rail yard cleanup will be utilized for this closure plan. It should be noted that this cleanup level is conservative in comparison to the risk based cleanup level proposed by the EPA (Proposed Subpart S, 40 CFR Part 264, in the Federal Register, July 27, 1990). The EPA proposes a soil cleanup value for PCP of 2,000 ppm.

13. Sampling Plan and Analytical Methods

Samples will be collected from the upper two feet of soil according to a prescribed grid system. If necessary, the uppermost three to six inches of material will first be scraped away to rid the sample collection point of vegetation, debris, and rock. Samples will be then collected in a continuous vertical interval of six inches. Sampling equipment will consist of a soil auger, stainless steel trowel, or other appropriate devices. Soil will be placed in a lab-certified clean eight-ounce glass jar and tightly sealed with a Teflon-lined lid. The sample jar will be completely filled with soil to prevent headspace losses. Labels and proper chain-of-custody documentation will be completed to include the following information:

- Sampler initials
- Date of sample collection
- Time of sample collection
- Sample identification number
- Sample location
- Analytical method

Samples will be preserved at 4° Celsius and shipped overnight to an analytical laboratory that participates in the IEPA contract lab program (CLP).

The Former Drum Storage Area is approximately 60 feet by 30 feet (0.041 acres), requiring a minimum grid interval of 12 feet. The grid interval size is based on the following IEPA equation for sample areas less than three acres:

$$GI = (A/\pi)^{0.5}/2$$

Where:

GI = Grid Interval

A = Area

$$GI = (1{,}800\ ft^2/\pi)^{0.5}/2 = 11.96\ feet$$

Based on the calculated grid interval of 12 feet, samples will be collected from eight points within the area of concern. Figure 5 shows the sample point locations and identifications that will be used.

Soil samples will be analyzed by SW-846 Method 8270 for pentachlorophenol. Analytical results will be evaluated to determine if the 20 ppm PCP cleanup level has been exceeded. Soil grids in which sample points that do not exceed the cleanup level for PCP will be considered clean. If sample results should exceed the cleanup level for PCP, the appropriate soil grid will be targeted for future remediation.

The analytical laboratory that will be selected for sample testing will be a participant in the IEPA contract lab program. Proof of IEPA CLP participation for two candidate laboratories is provided in Appendix D. The laboratory will perform matrix spike and duplicate analyses as an internal QA/QC check.

Prior to sample collection, the sample points will be marked according to the horizontal grid system. All sampling information and field maps will be maintained in a project log book.

Sample labels and chain-of-custody records will be checked for accuracy and completeness prior to shipment to the selected analytical laboratory. Carbon copies of all chain-of-custody records and field logs will be retained for project records.

The Former Drum Storage Area and each sample point location will be surveyed using established benchmarks. Vertical control will be maintained to the nearest 0.1 foot and horizontal control will be to the nearest 0.1 foot.

14. CONTAMINATED SOIL REMOVAL

Removal of soil is not anticipated for this closure. If sample results should exceed the 20 ppm PCP cleanup level, the appropriate soil grid would be marked for future remediation. The sequence of remediation, if necessary, would consist of: 1) excavating the appropriate soil grid, 2) drumming of removed material, 3) conducting confirmatory sampling, and 4) backfilling of the excavated area with clean material. The area locations and depths of excavation would be included in a final site survey. At the present time, no facility is permitted to treat or dispose of F027 waste. Therefore, drummed material containing PCP wastes would be secured at the Present Drum Storage Facility until such a facility is available.

15. DISPOSAL OF HAZARDOUS WASTES AND CLEANUP RESIDUES

The PCP-contaminated material stored on-site will be removed when a permitted facility for the treatment and/or disposal of F027 wastes is available. No such facility exists at this time.

16. DISPOSAL UNIT CLOSURES

Not applicable to this site. No wastes will be left in place.

17. DESCRIPTION OF EQUIPMENT CLEANING

All hand tools used in sample collection and equipment in contact with PCP-contaminated material will be thoroughly cleaned with soap and water prior to leaving the established Contamination Reduction Zone (CRZ). The CRZ will be located directly adjacent to the Exclusion Zone (EZ), where soil sampling will be conducted. Additional information regarding decontamination site control measured is provided in the Health and Safety Plan of Appendix B. No soil removal is anticipated as part of the closure requirements. However, if heavy equipment is necessary, the items will be steam cleaned within the CRZ. Water used in equipment cleaning will be collected in an area lined with Visqueen and field screened for PCP using Ensys PENTA RIS^{c}, or equivalent (See Appendix C). Water containing detectable levels of PCP will be retained in drums at the Present Drum Storage Facility and disposed of at a facility that is permitted to treat or dispose of PCP-contaminated material.

18. CERTIFICATIONS AND REPORTS

The closure of this hazardous waste management unit will be certified by an independent professional engineer registered in the State of Illinois. Closure activities will be conducted when this closure plan is formally approved by the IEPA. After closure is completed, a professional engineer will provide certification of the activities within 60 days of completion.

The independent engineer will be present at all critical major points during the closure, including the soil sample collection and site surveying. If soil removal should be required, the independent engineer will be present during the excavation, drumming, confirmation sampling, backfilling, and final surveying activities.

A Closure Documentation Report will be submitted within 60 days of closure to certify the closure activities. This report shall include:

- The volume of waste and waste residue removed, including the waste resulting from decontamination activities;
- A description of the method of waste handling and transport;
- Waste manifest numbers or copies of manifests from removal of waste and waste residues;
- A description of the sampling and analytical methods used, including sample preservation and chain-of-custody methods;
- A chronological summary of closure activities;
- Color photo documentation of closure showing the unit before, during and after closure; and
- Tests performed, methods and results.

Since this will be a final closure, no cost estimate and financial assurance instruments will be submitted with these closure documents.

19. STATUS OF THE FACILITY AFTER CLOSURE

No treatment, storage or disposal of hazardous wastes will occur at this facility after closure.

20. PART A MODIFICATION AND WITHDRAWALS

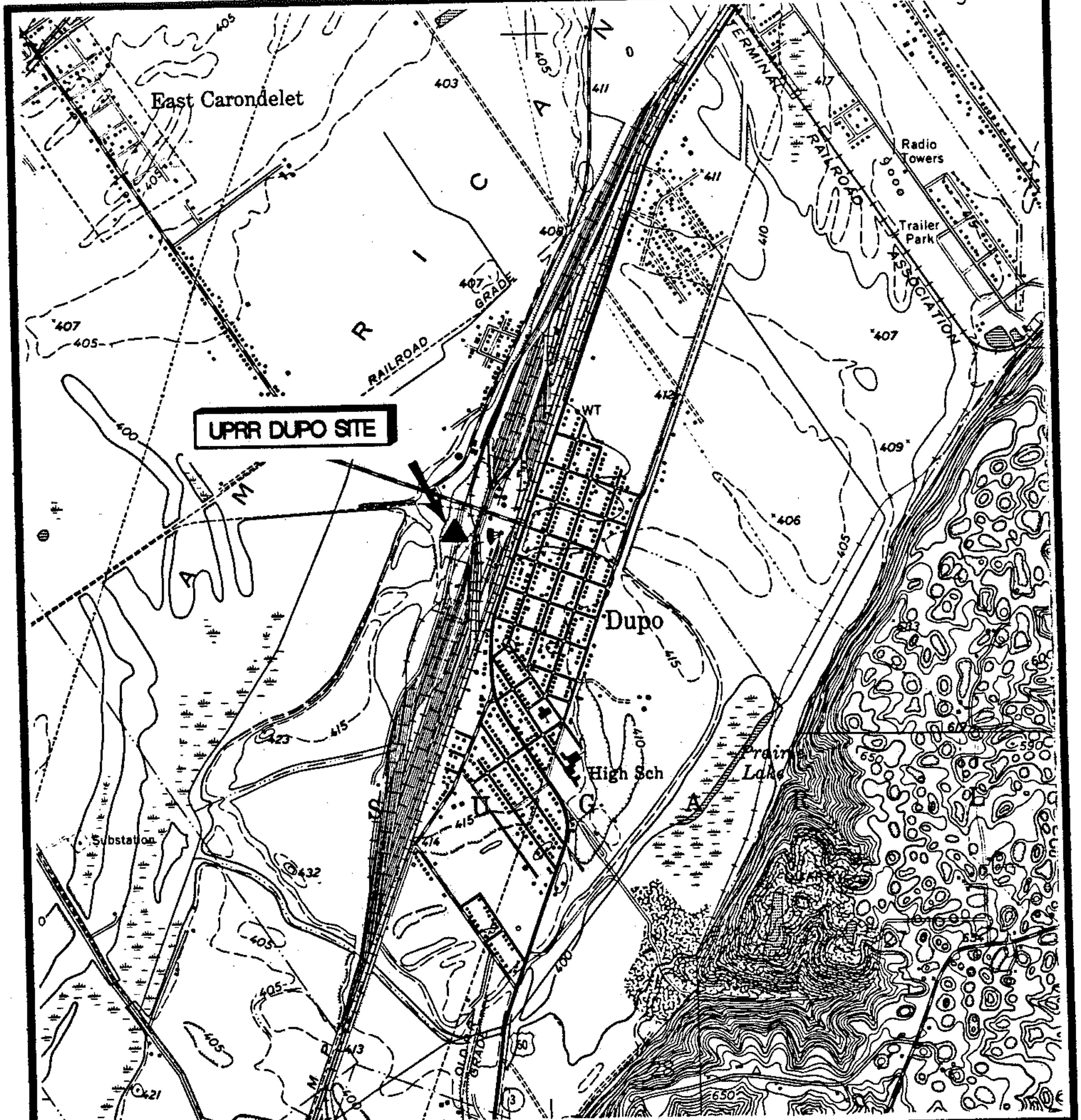
Not applicable. No Part A application has been submitted for this facility.

21. POST-CLOSURE CARE

No Post-Closure Care is planned for this storage area. All hazardous wastes will be removed from this facility. This facility is not a surface impoundment, landfill, land treatment unit, or waste pile unit.

22. LOCATION DOCUMENTATION FOR DISPOSAL UNITS

Not applicable. There were no disposal units at this facility.



North

USPCI
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DUPO, ILLINOIS

FIGURE 1
SITE LOCATION MAP

SCALE:	DRAWN/DATE	APPROVED
1"=2000' APPROX.	3/93	

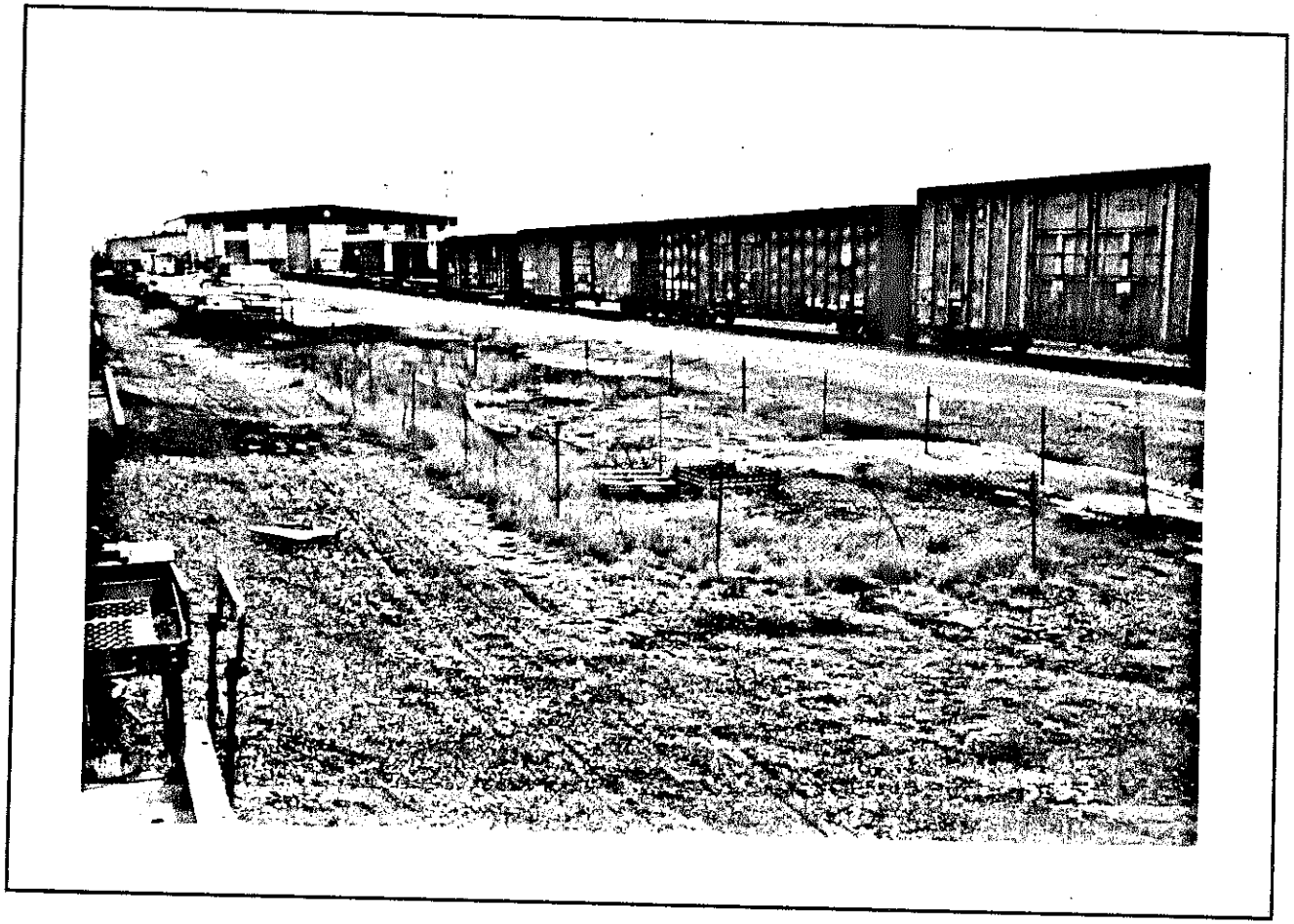
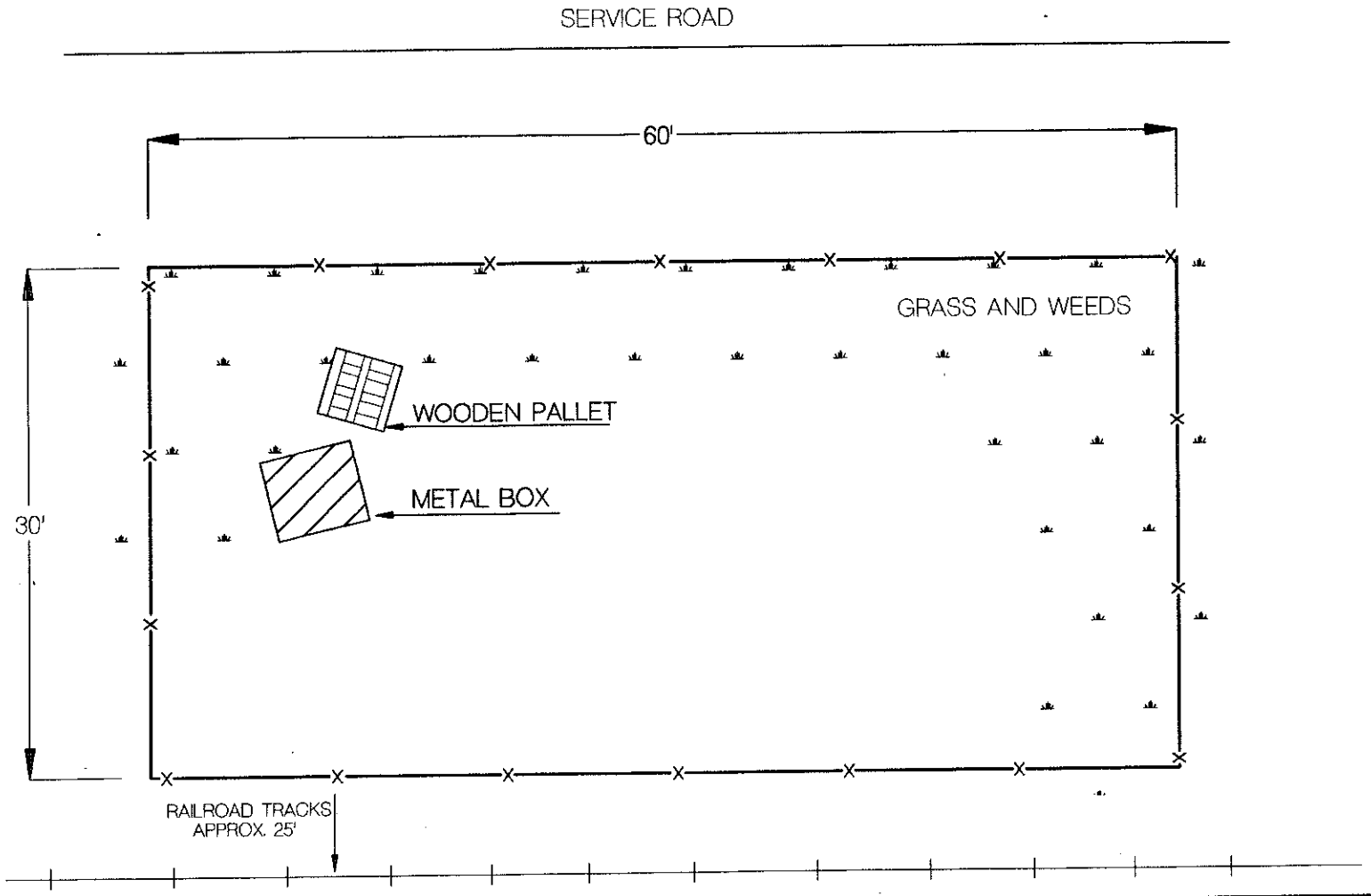


FIGURE 2 - Former Drum Storage Area Photograph, January 5, 1993



LEGEND

—X—X— ESTIMATED BOUNDARY OF STORAGE AREA (ORANGE FENCING)

North

0 10

FEET

USPCI
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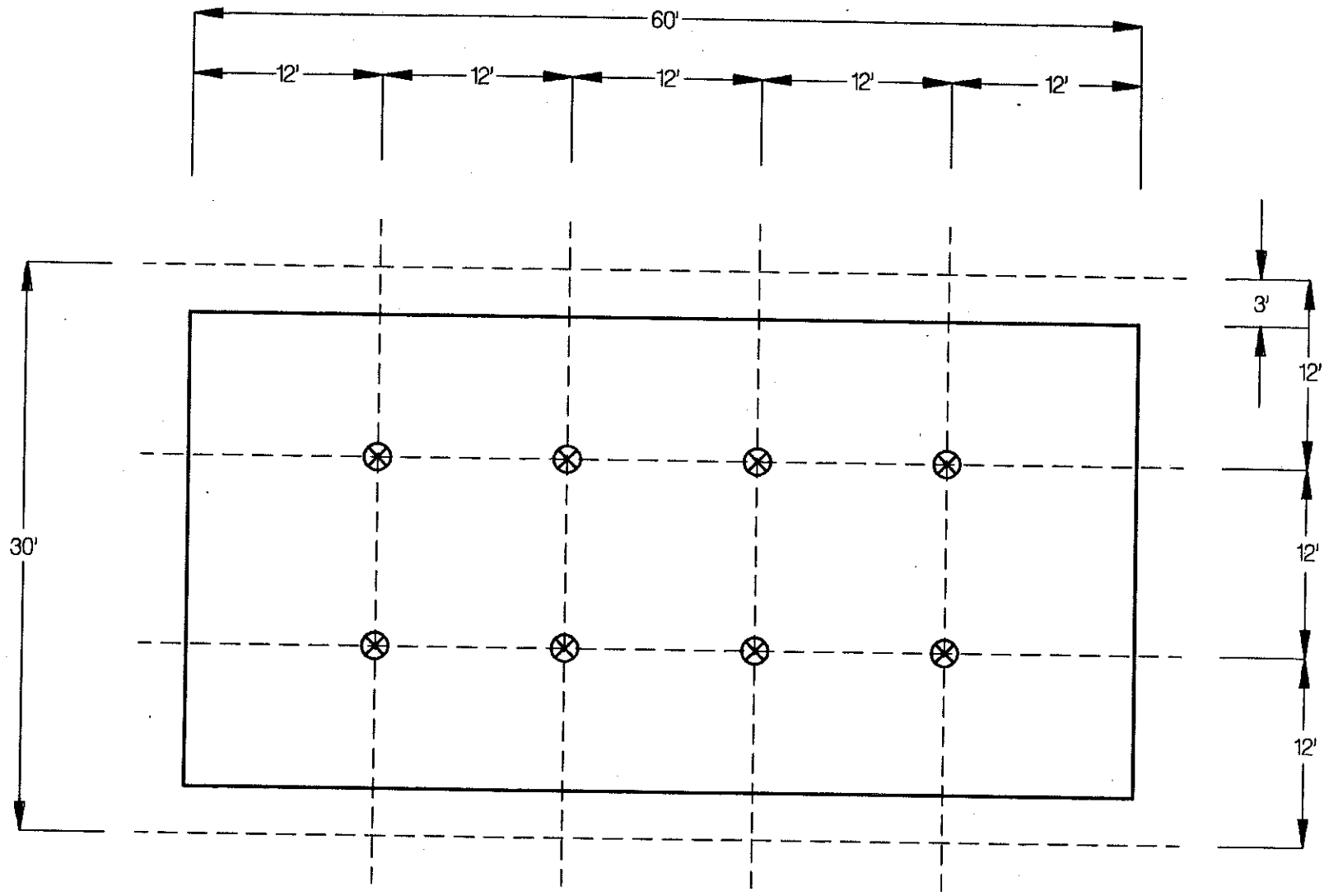
DUPO, ILLINOIS RAIL YARD

FIGURE 3
FORMER DRUM STORAGE AREA
PRESENT SITE CONDITION

SCALE 1"=10' | UPDATED/DATE 3/93

91275-08



LEGEND

ESTIMATED BOUNDARY OF STORAGE AREA

PROPOSED SAMPLE LOCATION

North

0 10

FEET

USPCI
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DUPO, ILLINOIS RAIL YARD

FIGURE 4
PROPOSED SOIL SAMPLE LOCATIONS
FORMER DRUM STORAGE AREA

SCALE: 1"=10' | UPDATED/DATE: 3/93

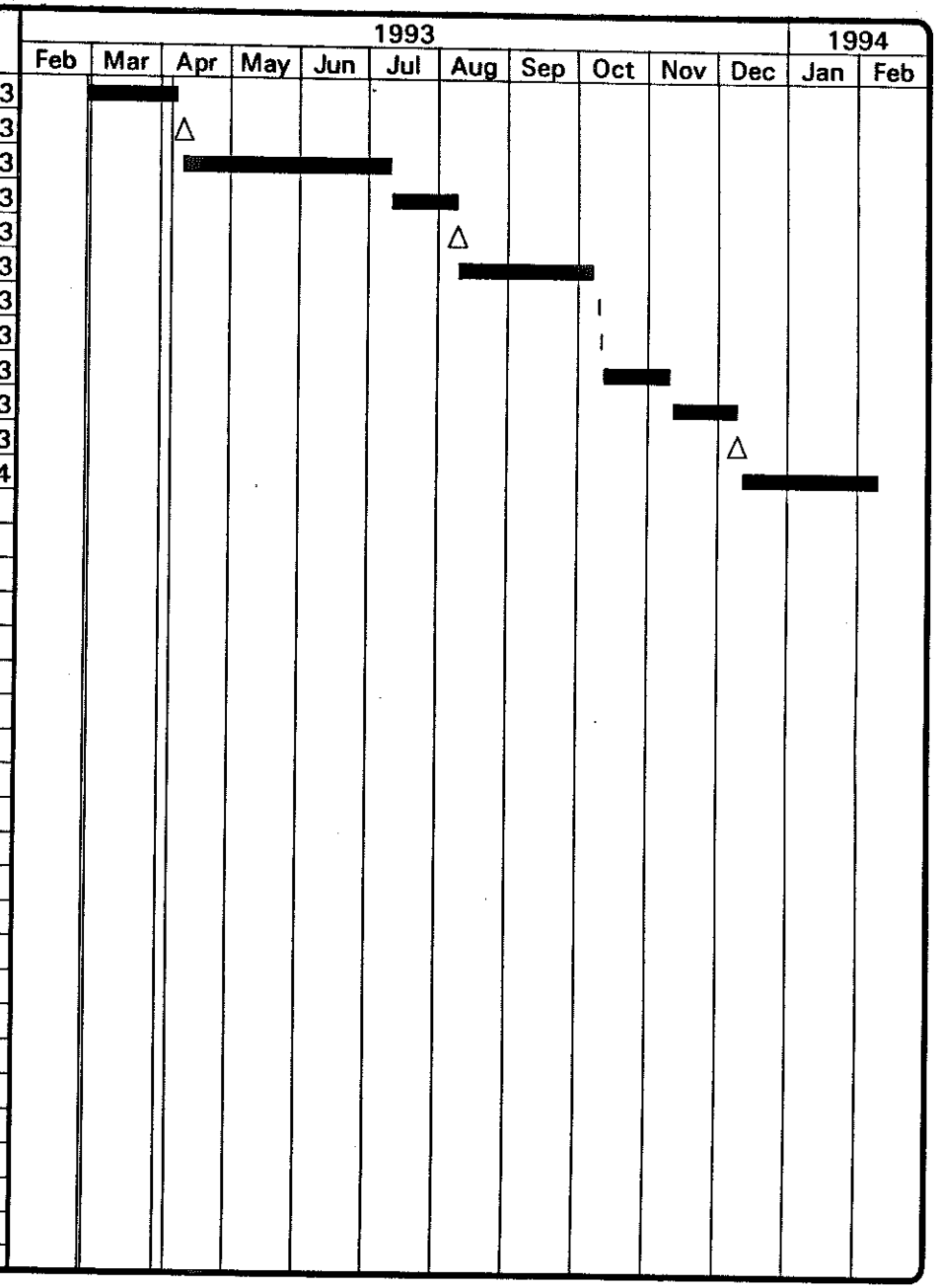
9:275-07

APPENDIX A

UPRR DUPO, ILLINOIS
FORMER DRUM STORAGE AREA SCHEDULE

UPRR Dupo, IL - Former Drum Storage Area

Task Name	Duration	Start	End
Prepare Draft Closure Plan	30.00 d	01-Mar-93	09-Apr-93
Submit Draft Closure Plan IEPA	0.00 d	12-Apr-93	12-Apr-93
IEPA Review/Comment	65.00 d	12-Apr-93	12-Jul-93
Finalize Closure Plan	21.00 d	13-Jul-93	10-Aug-93
Submit Final Closure Plan IEPA	0.00 d	10-Aug-93	10-Aug-93
IEPA Final Review/Approval	42.00 d	11-Aug-93	08-Oct-93
Collect Soil Samples	1.00 d	11-Oct-93	11-Oct-93
Survey Site	1.00 d	12-Oct-93	12-Oct-93
Sample Analysis	21.00 d	13-Oct-93	10-Nov-93
Prepare Closure Certificate	20.00 d	12-Nov-93	10-Dec-93
Submit Closure Certificate IEPA	0.00 d	10-Dec-93	10-Dec-93
Final Site Inspection IEPA	42.00 d	13-Dec-93	09-Feb-94



Printed: 07-Apr-93
Page 1

Milestone △ Summary

APPENDIX B

HEALTH AND SAFETY PLAN
UPRR DUPO, ILLINOIS

Health and Safety Plan

Union Pacific Railroad Company
Dupo, Illinois Rail Yard

Sample Collection

Prepared by:

USPCI, Inc.
Consulting Services Division
5665 Flatiron Parkway
Boulder, Colorado 80301

USPCI Project No. 91275
April 7, 1993

1. Introduction

The personal health and safety of all individuals directly involved in the closure of the Former Drum Storage Area, located at the Union Pacific Railroad (UPRR) Dupo, Illinois rail yard, as well as the general public who may be in the vicinity of the site, is of particular concern to USPCI. Therefore, all prudent and reasonable measures will be taken to establish and maintain safe, healthy working and environmental conditions.

This Health and Safety Plan (HSP) identifies the potential hazards associated with the closure activities and the actions which will be taken to minimize or eliminate those hazards; e.g., engineering controls, use of personal protective equipment (PPE), training, etc. Although efforts were made to develop a plan that is comprehensive and detailed, conditions may change after the project is initiated which warrant modification of this HSP. Throughout each stage of the project, this plan will be reviewed and changed or modified as necessary.

Modification of the HSP will be the responsibility of the USPCI Project Manager, or the designated individual. Changes will be reviewed and approved by a member of USPCI's Health and Safety staff. The activities of all on-site workers will be regulated by this or any modification of this HSP.

This HSP applies only to the UPRR Dupo, Illinois rail yard. The plan has been based upon the data obtained by prior investigations conducted by USPCI and others, and upon information provided by UPRR. Although it is anticipated that this project will not require it, an Emergency Response Plan is provided in this document.

2. Scope of Work

2.1 Client's Business

The UPRR maintains over 23,000 route miles of rail that are used primarily for transportation of various goods.

2.2 History and Location of Site

Since approximately the turn of the century, the site has been used as a railroad yard. During the years of operation, activities such as locomotive fueling, maintenance, and storage of railroad cars and other materials and equipment has taken place at the Dupo, Illinois site.

The work site is located as shown in Figure 1. This area previously served as a temporary storage area for several drums containing liquids and solids contaminated with pentachlorophenol (PCP). The drums have since been moved to an engineered storage facility also located at the rail yard.

The Dupo rail yard is flat with sparse vegetation. Access to the site is from East Carondelet Road in Dupo. There are active railroad tracks in the vicinity.

2.3 Time Frame

All work involved in this HSP is anticipated to take 1 to 2 days. Field work will be conducted only during daylight hours.

2.4 Personnel/General Scope of Work

Personnel present at the site will be from USPCI, REACT Environmental Engineers, The Sterling Company, or site visitors. REACT Environmental Engineers will serve as a UPRR subcontracted service.

Work will involve collecting soil samples from eight (8) sample points shown in Figure 2. All sampling will be conducted under the technical supervision of a USPCI employee. The on-site USPCI supervisor will be present at all times during sampling to: 1) provide technical oversight of the sample collection; 2) maintain a continuous log of field activities; 3) document soil sample collections; 4) provide information to the site engineer; and 5) ensure implementation of this USPCI Health and Safety Plan. One USPCI employee will conduct soil sampling and decontamination activities. Subcontracted services and other site visitors will include a 2-person survey crew and an engineer.

Soil samples will be collected according to the Sampling and Analysis Plan provided in the closure plan for the Former Drum Storage Area (USPCI 1993). Samples will be collected with a soil auger, stainless steel trowel, or other appropriate device. Soil will be placed in lab-certified clean eight-ounce jars and tightly sealed with a Teflon-lined lid. The sample jar will be completely filled with soil to prevent headspace losses. Chain-of-custody records will be maintained during the sampling program and transmitted to the laboratory with the samples. All sample locations will be located by a subcontracted surveyor.

2.5 Field Tasks/Equipment

The specific field tasks will include:

- Establish Site Control Zones
- Grid and stake sample areas; mark sample locations
- Collect, preserve, and document collection/shipment of soil samples
- Decontamination/disposal of equipment and materials
- Survey sample points
- Document sample collection and survey activities

The minimum equipment and tools required are:

- Shovel, soil auger, stainless steel trowel, or other appropriate sampling device.
- Stakes, flagging/barricade tape, hammer
- Coolers with ice, sample containers, chain-of-custody records
- Soap and water and other necessary decontamination/disposal materials
- Survey equipment

3. Potential Hazards

The hazards involved in this project involve both health and physical hazards that would normally accompany any soil sampling program. Concentrations of PCP in the area soils are unknown, but are not anticipated to exceed 20 ppm, since no evidence of drum leakage was encountered during past drum removal activities. In addition, those hazards associated with normal operations of an active rail yard exist.

3.1 Physical/Biological Hazards

- Heavy lifting
- Slips/trips/falls
- Railroad and vehicular traffic
- Dust
- Heat stress

Heat Stress:

Work will be conducted in a humid environment during the summer months. Ambient temperatures are expected to range from 70°F to 90°F during the daylight hours. When ambient temperatures become extreme, workers will be observed by the USPCI supervisor/health and safety designee, and other workers, for signs of heat stress. Individuals exhibiting any signs or experiencing any symptoms of heat stress shall be monitored as follows:

- The victim's pulse will be taken while he/she is lying down (radial pulse);
- The victim's pulse will be taken while he/she is standing (radial pulse);
- If the difference between the horizontal and vertical pulse rates is greater than 20, the victim will be classified as dehydrated and will be instructed to rest for at least one hour in an air-conditioned or shaded environment. He/she will be instructed to consume at least one quart of water during this time;
- Prior to returning to work, the victim's pulse will be checked again to verify that the difference is less than 20;
- Individuals who exhibit symptoms of nausea will be transported to the designated medical facility immediately.

Heat stress includes heat cramps, heat exhaustion, and heat stroke.

3.2 Chemical Hazards

Diesel Fuel:

Diesel fuel saturates areas of the subsurface soils throughout the rail yard. Prolonged skin contact may cause irritation and a rash. Inhalation of excessive vapor concentrations can cause headache, dizziness and nausea. If ingestion occurs and oil is aspirated into the lungs, chemical pneumonia may result. (See attached MSDS.) The flash point of diesel is 175 °F, the LEL is 0.6%, and the TLV is 5 ppm in an oil mist environment. Diesel is incompatible with strong oxidizers.

Pentachlorophenol (PCP):

PCP is the primary contaminant of concern during the soil sampling events. Possible routes of exposures to PCP include skin contact, inhalation, and ingestion. The primary hazard for PCP is dermal contact; liquid PCP is absorbed readily through the skin. Symptoms of exposure include burning/irritation, headaches, nausea/vomiting, coughing, difficulty breathing, dizziness, chest pain, and high fever. PCP is not combustible, has a TWA/TLV of 0.5 mg/m^3 and is incompatible with strong oxidizers. See the attached MSDS for additional information.

Methanol

Methanol is used as an extraction fluid for field for testing PCP in soils. Possible routes of exposure include skin contact, inhalation, and ingestion. Methanol (methyl alcohol) is usually a colorless liquid with a pungent odor. Symptoms of exposure include irritated eyes, headaches, drowsiness, nausea/vomiting, limited visibility and/or blindness. Methanol has a flash point of 52°F, an LEL of 6%, and is incompatible with strong oxidizers. The attached MSDS provides additional information.

4. Engineering Controls

- No smoking will be allowed within the immediate work site. No food will be allowed within 25 feet of the sample area. Decontamination of hands and face will take place prior to consumption of food.

- The job site is a flat low-lying open area; ventilation will not be a problem.

- Access to the sample area will be restricted. Section 7 describes the site access controls.

- The possibility for heat stress will be reduced by taking frequent breaks and drinking liquids as needed.

- Completed sample collection points will be backfilled with uncovered material to eliminate the slip/trip/fall potential.

- Personnel shall avoid the active railroad tracks.

5. Personal Protective Equipment (PPE)

PPE within the immediate work area will be a modified Level "D", consisting of Tyvek or Kleenguard coveralls, hard hats, N-Dex nitrile latex exam gloves, chemical resistant steel toed boots, and safety glasses with side shields. Workers conducting the actual soil sampling will have access to full face respirators, and shall don the respirator if windy/dusty conditions are encountered. Respirators shall have GMA-H cartridges in order to be effective on dust with a TWA of 0.05 mg/m^3, as well as organic vapors.

6. Field Monitoring

Field monitoring will consist of visual observation for windy/dusty conditions. MINIRAMs will be used during windy/dusty conditions to continuously monitor particulate concentrations. The area will be watered to control excessive dust. If particulate levels exceed 3 mg/m^3, operations will be suspended.

7. Site Control Measures

Exclusion Zone:

An Exclusion Zone (EZ) will be set up around the sample area by means of staking and barricade taping. Sampling and surveying will take place in this zone. No personnel will be permitted to enter the EZ without providing proof of the following: 1) 40-hour Health and Safety training, 2) medical evaluation and found to be "physically fit" to work at a remediation site, and 3) reading and signature of this Health and Safety Plan. Smoking, drinking, and eating are prohibited in the EZ.

Contaminant Reduction Zone:

The Contaminant Reduction Zone (CRZ) will consist of an accessible area immediately adjacent to the EZ. The CRZ shall have one point of entrance and one point of egress. All personnel leaving the EZ shall complete the appropriate decontamination and disposal of themselves and equipment prior to leaving the CRZ. All sample gloves, coveralls, and other disposable items will be collected in the CRZ for disposal. Smoking, drinking, and eating are prohibited in the CRZ.

Support Zone:

The Support Zone (SZ) will include the vicinity around the EZ and CRZ. Normal work

operations including checks of sample labelling, packing, and completion of the chain-of-custody records will be completed in this zone.

8. Decontamination Procedures

Nondisposable sampling equipment will be thoroughly cleaned with soap and water. Boots will be decontaminated by means of two tubs, one containing soap and the other containing rinse water. Rinse water will be collected and field tested for PCP. If detectable levels of PCP exist, the rinse water will be retained at the site and later transported to the Present Drum Storage Facility at the Dupo rail yard.

Used gloves, coveralls, and other expendable items will be disposed of at the end of the day. Respirators will be washed, if worn. Personnel will be encouraged to maintain good personal hygiene habits.

9. Training

All USPCI personnel, subcontracted individuals, and site visitors will be required to provide proof of 1) current 40-hour Health and Safety training, and 8-hour Annual Refresher if applicable; 2) medical evaluation and found to be "physically fit" to work at a remediation site; and 3) respirator fit testing. The USPCI representative will also have current supervisory training certification. Site specific issues and daily work plans will be discussed on-site at the start of each day.

10. Medical Monitoring

All personnel are required to provide proof of being "physically fit" to work at a remediation site. Workers on site will be observed for signs of exertion, stress and dehydration.

11. Emergency Plan

In the event of an emergency, all personnel involved in the project activities will be required to meet at the field vehicles and follow the USPCI supervisor's directives. An eye wash and a First Aid kit will be located on-site. Should an injury occur, the immediate well-being of the injured party is the prime concern. The emergency numbers and the route to the nearest emergency medical service facility are listed below:

11.1 Emergency Numbers/Contacts

UPRR Client Contact: Jeff McDermott	(402)271-3675
USPCI Project Manager: Janet Yanowitz	(303)938-5533
USPCI Health & Safety: Steve Clegg	(303)938-5500
REACT Environmental Engineers: Dan Barczykowski	(314)569-0991

The Sterling Company: George Gower	(314)739-0440
Fire	911
Ambulance	911
St. Mary's Hospital	(314)274-1905

11.2 Hospital Route

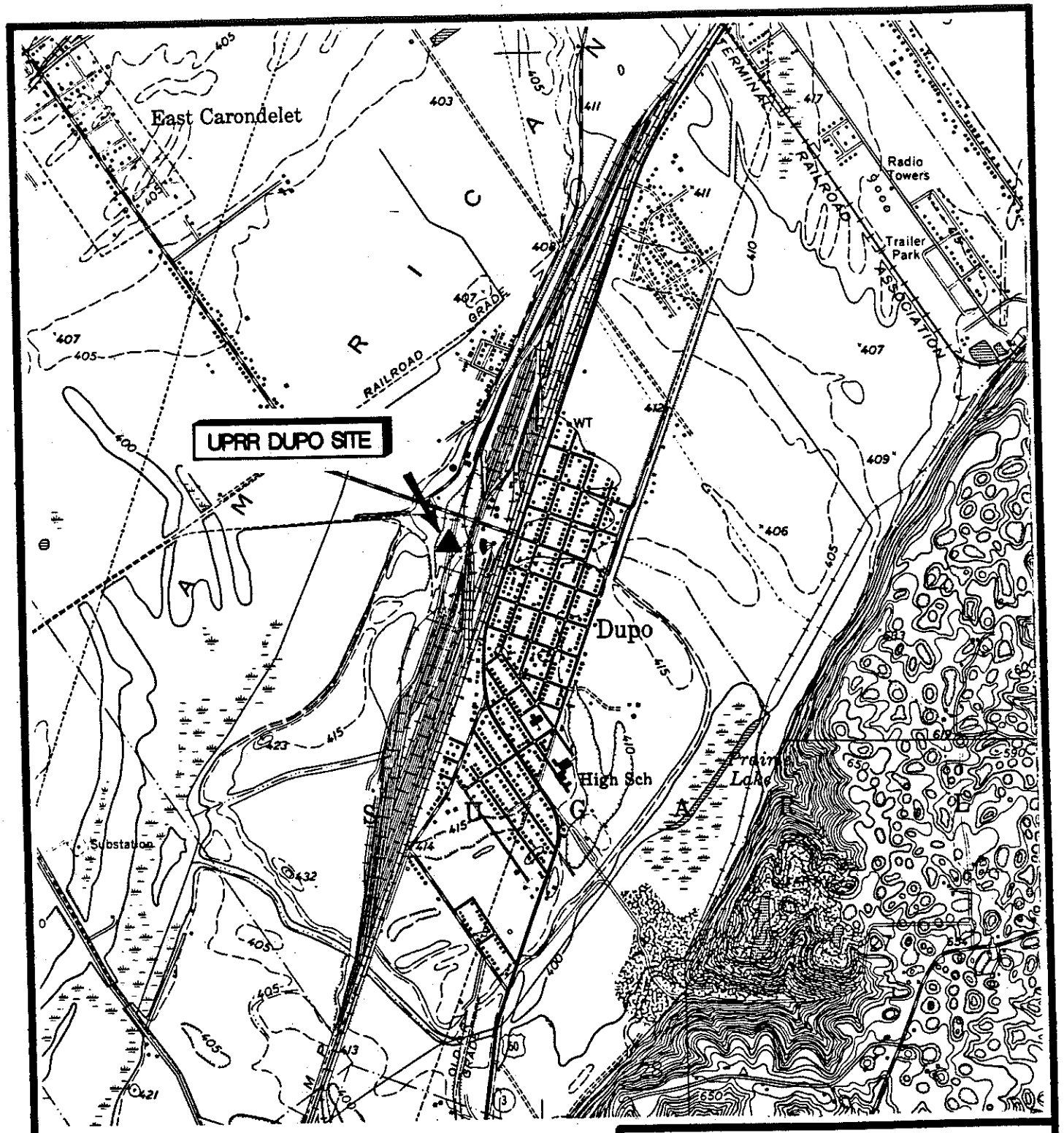
St. Mary's Hospital - 129 N. 8th Street, East St. Louis, IL

Leave site north on Route 3. Approximately 11 miles, go left on 8th Street. Hospital at 129 8th street.

12. Acknowledgement

I acknowledge that I have read and understand the preceding Health and Safety Plan and will abide by the requirements specified in it.

Name	Signature	Date/Time	Company/Organization Representing



ILLINOIS

QUADRANGLE LOCATION

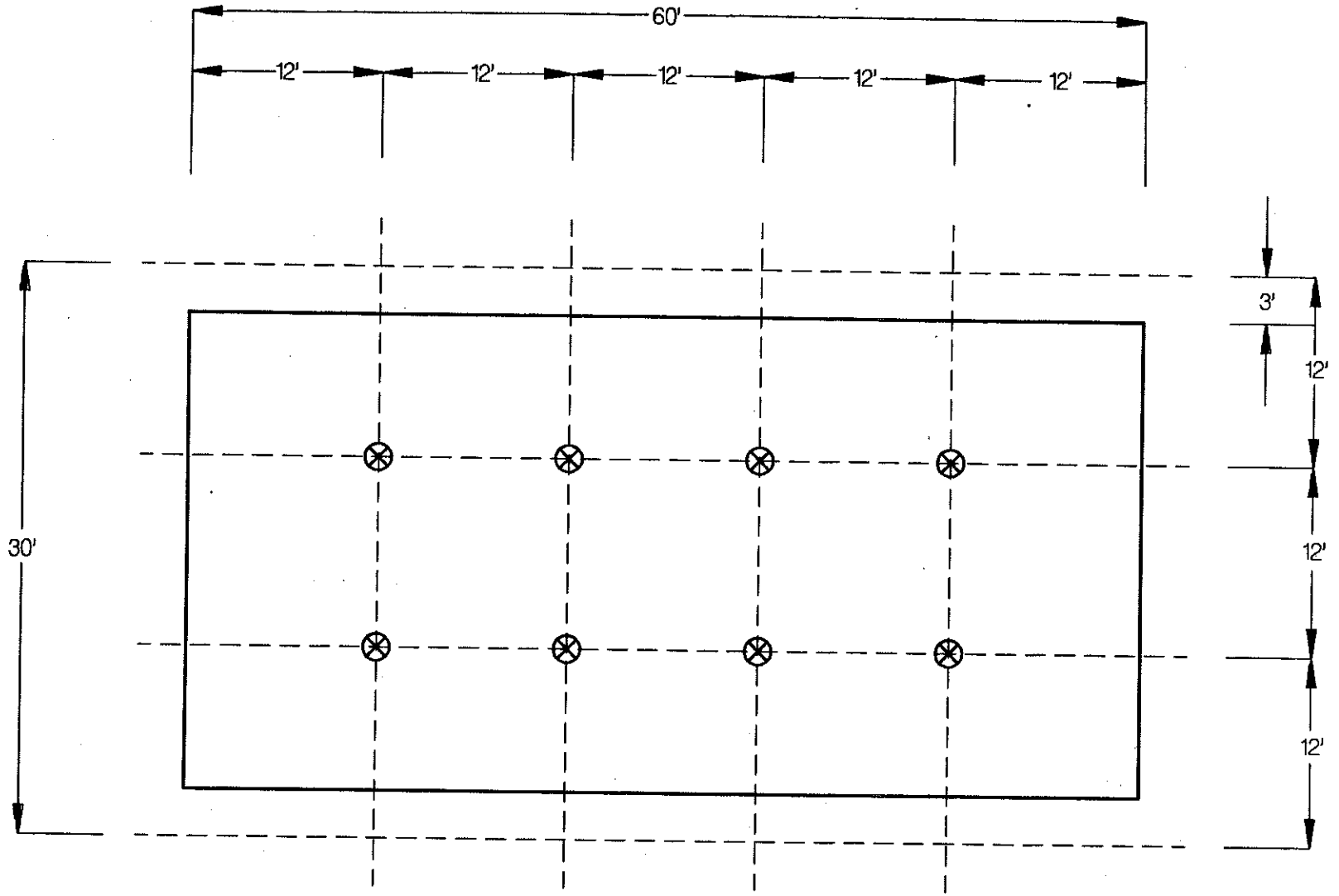
North

USPCI
A Subsidiary of Union Pacific Corporation

DUPO, ILLINOIS

FIGURE 1
SITE LOCATION MAP

SCALE:	DRAWN/DATE	APPROVED
1"=2000' APPROX.	3/93	



LEGEND

ESTIMATED BOUNDARY OF STORAGE AREA

PROPOSED SAMPLE LOCATION

North

0 10

FEET

USPCI
A Subsidiary of Union Pacific Corporation

DUPO, ILLINOIS RAIL YARD

FIGURE 2
PROPOSED SOIL SAMPLE LOCATIONS
FORMER DRUM STORAGE AREA

SCALE 1"=10' | UPDATED/DATE 3/93

91275-07

MATERIAL SAFETY DATA SHEET

GENIUM PUBLISHING CORPORATION
1145 CATALYN STREET
SCHENECTADY, NY 12303-1836 USA
(518) 377-8855

GENIUM PUBLISHING CORP.

NO. 470

DIESEL FUEL OIL NO. 2-D

Date October 1981

SECTION I. MATERIAL IDENTIFICATION

MATERIAL NAME: DIESEL FUEL OIL NO. 2-D
DESCRIPTION: Mixture of petroleum hydrocarbons; a distillate oil of low sulfur content
OTHER DESIGNATIONS: ASTM D975, CAS # 068 476 346
MANUFACTURER: Available from many suppliers

SECTION II. INGREDIENTS AND HAZARDS	%	HAZARD DATA
Diesel Fuel Oil No. 2-D		
Complex mixture of paraffinic, olefinic, naphthenic and aromatic hydrocarbons**	>95	8-hr TWA 5mg/m^3* (mineral oil mist)
Sulfur content	<0.5	
Benzene***	<100 ppm	

*Current OSHA standard and ACGIH (1981) TLV
**Diesel fuels tend to be low in aromatics and high in paraffinics. A min. Cetane No. of 40 is required (ASTM D613).
***A low benzene level reduces carcinogenic risk. Fuel oils can be exempted under the benzene standard (29 CFR 1910.1028)

SECTION III. PHYSICAL DATA

Boiling point range, deg F, -------	Ca 340-675	Specific gravity (H_2O=1) ----	<0.86
Solubility in water ----------	negligible	Cloud point (wax), deg C ---	Ca 0
Viscosity at 40 C, cSt ----------	1.9-4.1		

Appearance and Odor: Clear, bright liquid with a mild petroleum odor.

SECTION IV. FIRE AND EXPLOSION DATA

Flash Point and Method	Autoignition Temp.	Flammability Limits In Air % by volume	LOWER	UPPER
125F min (PM)	>500F		0.6	7.5

Extinguishing Media: Dry chemical, carbon dioxide, foam, water spray. Use a water spray to cool fire exposed containers. Use a smothering technique for extinguishing fire of this combustible liquid. Do not use a forced water stream directly on oil fire as this will only scatter the fire. Material is a OSHA Class II combustible liquid. Firefighters should wear self-contained breathing apparatus and full protective clothing.

SECTION V. REACTIVITY DATA

This is a stable material in closed containers at room temperature under normal storage and handling conditions. It does not undergo hazardous polymerization. Incompatible with strong oxidizing agents; heating greatly increases fire hazard. Thermal -oxidative degradation may yield various hydrocarbons and hydrocarbon derivatives (partial oxidation products), CO_2 and CO and SO_2.

NO. 470

SECTION VI. HEALTH HAZARD INFORMATION

TLV 5 mg/m^3 oil (mist) (See Sect II)

Inhalation of excessive concentrations of vapor or mist can be irritating to the respiratory passages and can cause the following symptoms: headache, dizziness, nausea, vomiting, and loss of coordination. Prolonged or repeated skin contact may cause irritation of the hair follicles and block the sebaceous glands. This produces a rash of acne pimples and spots, usually on the arms and legs. (Good personal hygiene will prevent this).

Chemical pneumonitis may result when ingestion occurs and oil is aspirated in the lungs.

FIRST AID:

Eye Contact: Flush thoroughly with running water for 15 min. including under eyelids.

Skin Contact: Remove contaminated clothing. Wipe excess oil off with a dry cloth. Wash affected area well with soap and water.

Inhalation: Remove to fresh air. Restore and/or support breathing as required.

Ingestion: Do not induce vomiting.

Seek medical assistance for further treatment, observation and support.

SECTION VII. SPILL, LEAK, AND DISPOSAL PROCEDURES

Notify safety personnel of leaks or spills. Remove sources of heat or ignition. Provide adequate ventilation. Clean-up personnel to use protection against liquid contact and vapor or mist inhalation. Contain spill by diking. Small spills can be contained by using absorbants, such as rags, straw, polyurethane foam, activated carbon, and sand. Clean up spills promptly to reduce fire or vapor hazards.

DISPOSAL: May be disposed of by a licensed waste disposal company, or by controlled incineration or burial in an approved landfill.

Follow Federal, State and Local regulations. Report large oil spills.

SECTION VIII. SPECIAL PROTECTION INFORMATION

Provide adequate ventilation where operating conditions (heating or spraying) may create excessive vapors or mists. Use explosion-proof equipment. Provide approved respiratory apparatus for nonroutine or emergency use. Use an approved filter & vapor respirator when vapor/mist concentrations are high. Wear protective rubber gloves and chemical safety glasses where contact with liquid or high mist conc. may occur. Additional suitable protective clothing may be required depending on working conditions. An eye-wash fountain and washing facilities to be readily available near handling and use areas.

Launder soiled or contaminated clothing before reuse (at least weekly laundering of work clothes is recommended).

SECTION IX. SPECIAL PRECAUTIONS AND COMMENTS

Store in closed containers in a cool, dry, well-ventilated area away from sources of open flame, heat, strong oxidizing agents, and ignition. Protect containers from physical damage. Use non sparking tools and explosion-proof electrical equipment. Prevent static electric sparks.

Avoid prolonged skin contact and breathing of vapors or mists.

No smoking in areas of use. Follow good hygienic practice in the use of this material. Do not wear oil contaminated clothing. Do not put oily rags into pockets. Wash exposed skin areas several times a day with soap and warm water when working with this material. DOT Classification: COMBUSTIBLE LIQUID

DATA SOURCE(S) CODE: 1,6,7,12

APPROVALS: MIS J. M. Nielsen

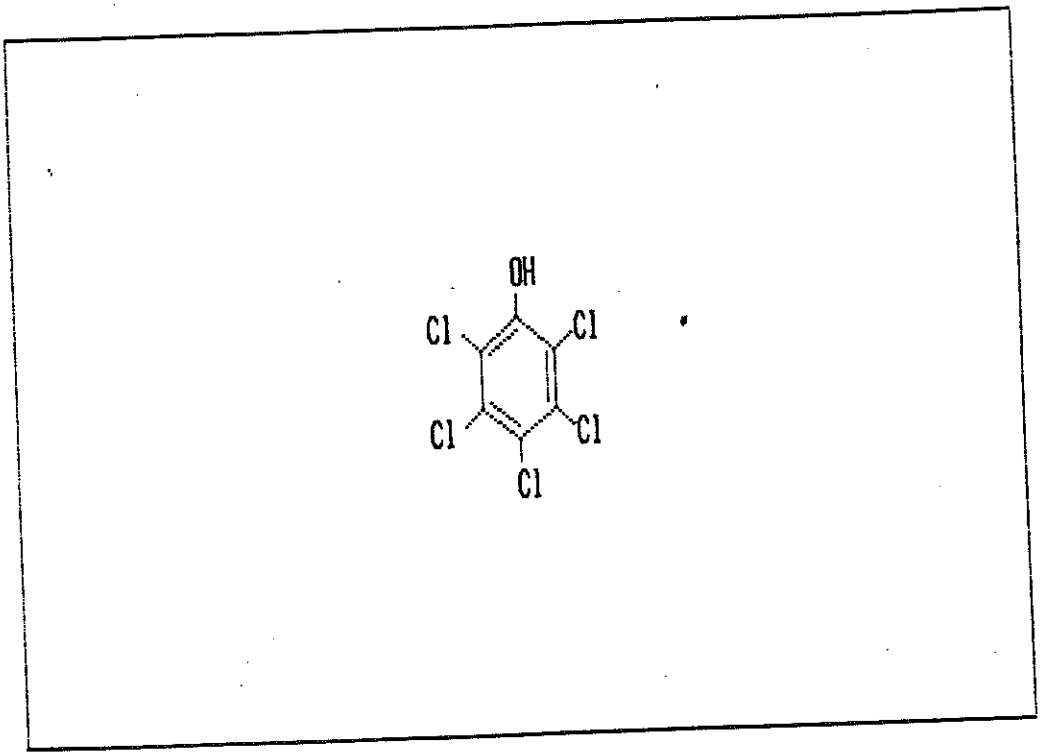
Industrial Hygiene and Safety 10-12-81

MEDICAL REVIEW: 21 October 1981

MATERIAL SAFETY DATA SHEET Valid 8/92-10/92

Sigma-Aldrich Corporation
1001 West Saint Paul Ave. Milwaukee, WI 53233 USA

		Sigma	Aldrich
For Emergency	Contact USA/Canada	800-325-5832	800-231-8327
	Outside USA/Canada	314-771-5765	414-273-3850



IDENTIFICATION

NAME: PENTACHLOROPHENOL, 99%

PRODUCT #: P260-4
CAS #: 87-86-5
MF: C6HCL5O

SYNONYMS

ACUTOX * CHEM-PENTA * CHEM-TOL * CHLOROPHEN * CRYPTOGIL OL * DOWCIDE 7 * DOWICIDE 7 * DOWICIDE EC-7 * DOWICIDE G * DOW PENTACHLOROPHENOL DP-2 ANTIMICROBIAL * DUROTOX * EP 30 * FUNGIFEN * GLAZD PENTA * GRUNDIER ARBEZOL * 1-HYDROXYPENTACHLOROBENZENE * LAUXTOL * LAUXTOL A * LIROPREM * NA 2020 (DOT) * NCI-C54933 * NCI-C55378 * NCI-C56655 * PCP * PENCHLOROL * PENTA * PENTACHLOORFENOL (DUTCH) * PENTACHLOROFENOL * PENTACLOROFENOLO (ITALIAN) * PENTACHLOROPHENATE * PENTACHLOROPHENOL * 2,3,4,5,6-PENTACHLOROPHENOL * PENTACHLOROPHENOL (ACGIH,OSHA) * PENTACHLOROPHENOL, DOWICIDE EC-7 * PENTACHLOROPHENOL, DP-2 * PENTACHLORPHENOL (GERMAN) * PENTACHLOROPHENOL, TECHNICAL * PENTACON * PENTA-KIL * PENTA READY * PENTASOL * PENTA WR * PENWAR * PERATOX * PERMACIDE * PERMAGARD * PERMASAN * PERMATOX DP-2 * PERMATOX PENTA * PERMITE * PREVENOL * PRILTOX * RCRA WASTE NUMBER U242 * SANTOBRITE * SANTOPHEN 20 * SINITUHO * TERM-I-TROL * THOMPSON'S WOOD FIX * WEEDONE * WITOPHEN P *

---------- TOXICITY HAZARDS ----------

RTECS NO: SM6300000
PHENOL, PENTACHLORO-

IRRITATION DATA

SKN-RBT 10 MG/24H OPEN MLD	AIHAAP 23,95,62

TOXICITY DATA

ORL-MAN LDLO:401 MG/KG	EESADV 1,343,77
ORL-RAT LD50:27 MG/KG	JPETAB 76,104,42
IHL-RAT LC50:355 MG/M3	GTPZAB 13(9),58,69
SKN-RAT LD50:96 MG/KG	GTPZAB 13(9),58,69
IPR-RAT LD50:56 MG/KG	BJPCAL 13,20,58
SCU-RAT LD50:58 MG/KG	SRTCAC 36(1-4),10,89
ORL-MUS LD50:117 MG/KG	TOLED5 29,39,85
IHL-MUS LC50:225 MG/M3	GTPZAB 13(9),58,69
IPR-MUS LD50:58 MG/KG	JTEHD6 10,699,82
UNR-DOG LD50:70 MG/KG	PHPHA6 1,3,53
UNR-GPG LD50:100 MG/KG	PHPHA6 1,3,53
ORL-HAM LD50:168 MG/KG	TXAPA9 48,A192,79
ORL-DCK LD50:380 MG/KG	DOEAAH 35,25,79
UNR-FRG LD50:36 MG/KG	PHPHA6 1,3,53

REVIEWS, STANDARDS, AND REGULATIONS

ACGIH TLV-TWA 0.5 MG/M3 (SKIN) 85INA8 5,461,86
IARC CANCER REVIEW:HUMAN LIMITED EVIDENCE IMEMDT 41,319,86
IARC CANCER REVIEW:ANIMAL SUFFICIENT EVIDENCE IMEMDT 53,371,91
IARC CANCER REVIEW:ANIMAL INADEQUATE EVIDENCE IMEMDT 20,303,79
IARC CANCER REVIEW:HUMAN INADEQUATE EVIDENCE IMEMDT 53,371,91
IARC CANCER REVIEW:GROUP 2B IMEMDT 53,371,91
EPA FIFRA 1988 PESTICIDE SUBJECT TO REGISTRATION OR RE-REGISTRATION FEREAC 54,22706,89
MSHA STANDARD-AIR:TWA 0.5 MG/M3 (SKIN) DTLVS* 3,198,71
OSHA PEL:8H TWA 0.5 MG/M3 (SKIN) FEREAC 54,2923,89
OSHA PEL FINAL:8H TWA 0.5 MG/M3 (SKIN) FEREAC 54,2923,89
NOHS 1974: HZD 54160; NIS 47; TNF 3548; NOS 42; TNE 29154
NOES 1983: HZD 54160; NIS 29; TNF 2248; NOS 38; TNE 26806; TFE 4191
ATSDR TOXICOLOGY PROFILE (NTIS** PB/90/182163/AS)
EPA GENETOX PROGRAM 1988, POSITIVE: CELL TRANSFORM.-SA7/SHE; S CEREVISIAE GENE CONVERSION
EPA GENETOX PROGRAM 1988, POSITIVE: S CEREVISIAE-FORWARD MUTATION
EPA GENETOX PROGRAM 1988, NEGATIVE: HOST-MEDIATED ASSAY; MOUSE SPOT TEST
EPA GENETOX PROGRAM 1988, NEGATIVE: HISTIDINE REVERSION-AMES TEST; S CEREVISIAE-HOMOZYGOSIS
EPA TSCA CHEMICAL INVENTORY, JUNE 1990
ON EPA IRIS DATABASE
EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, MARCH 1992
NIOSH ANALYTICAL METHODS: SEE PENTACHLOROPHENOL 5512
NIOSH ANALYTICAL METHODS: SEE PENTACHLOROPHENOL IN BLOOD 8001; IN URINE 8303
NTP CARCINOGENESIS STUDIES (FEED);CLEAR EVIDENCE;MOUSE NTPTR* NTP-TR-349,89
NTP CARCINOGENESIS STUDIES;LABORATORY ASSIGNED, JANUARY 1992
OSHA ANALYTICAL METHOD #39

TARGET ORGAN DATA

PERIPHERAL NERVE AND SENSATION (FLACCID PARALYSIS WITHOUT ANESTHESIA)
BEHAVIORAL (SOMNOLENCE)
BEHAVIORAL (CONVULSIONS OR EFFECT ON SEIZURE THRESHOLD)

BEHAVIORAL (EXCITEMENT)
BEHAVIORAL (CHANGE IN MOTOR ACTIVITY)
BEHAVIORAL (MUSCLE WEAKNESS)
BEHAVIORAL (MUSCLE CONTRACTION OR SPASTICITY)
VASCULAR (BP ELEVATION NOT CHARACTERIZED IN AUTONOMIC SECTION)
LUNGS, THORAX OR RESPIRATION (DYSPNAE)
LUNGS, THORAX OR RESPIRATION (RESPIRATORY STIMULATION)
LUNGS, THORAX OR RESPIRATION (TUMORS)
GASTROINTESTINAL (CHANGES IN STRUCTURE OR FUNCTION OF SALIVARY GLANDS)
LIVER (TUMORS)
KIDNEY, URETER, BLADDER (URINE VOLUME INCREASED)
ENDOCRINE (HYPERGLYCEMIA)
SKIN AND APPENDAGES (SWEATING)
EFFECTS ON EMBRYO OR FETUS (FETOTOXICITY)
EFFECTS ON EMBRYO OR FETUS (FETAL DEATH)
SPECIFIC DEVELOPMENTAL ABNORMALITIES (MUSCULOSKELETAL SYSTEM)
SPECIFIC DEVELOPMENTAL ABNORMALITIES (HOMEOSTASIS)
NUTRITIONAL AND GROSS METABOLIC (BODY TEMPERATURE INCREASE)
TUMORIGENIC (EQUIVOCAL TUMORIGENIC AGENT BY RTECS CRITERIA)
ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES (RTECS)
DATA IS PRESENTED HERE. SEE ACTUAL ENTRY IN RTECS FOR COMPLETE INFORMATION.

---------- HEALTH HAZARD DATA ----------

ACUTE EFFECTS
MAY BE FATAL IF INHALED, SWALLOWED, OR ABSORBED THROUGH SKIN.
CAUSES EYE AND SKIN IRRITATION.
MATERIAL IS IRRITATING TO MUCOUS MEMBRANES AND UPPER
RESPIRATORY TRACT.
EXPOSURE CAN CAUSE:
CONVULSIONS
DERMATITIS

CHRONIC EFFECTS
DAMAGE TO THE LIVER
DAMAGE TO THE KIDNEYS
MAY CAUSE CONGENITAL MALFORMATION IN THE FETUS.
CARCINOGEN.
MAY ALTER GENETIC MATERIAL.
TARGET ORGAN(S):
LIVER, KIDNEYS

FIRST AID
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES OR SKIN WITH COPIOUS
AMOUNTS OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED
CLOTHING AND SHOES.
IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL
RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.
IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS.
CALL A PHYSICIAN.
WASH CONTAMINATED CLOTHING BEFORE REUSE.

---------- PHYSICAL DATA ----------

BOILING PT: 310 C
MELTING PT: 188 C TO 191 C
SPECIFIC GRAVITY: 1.978
VAPOR DENSITY: 9.2
VAPOR PRESSURE: 40 MM @ 211.2 C

APPEARANCE AND ODOR
OFF-WHITE POWDER

---------- FIRE AND EXPLOSION HAZARD DATA ----------

EXTINGUISHING MEDIA
WATER SPRAY.
CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.
SPECIAL FIREFIGHTING PROCEDURES
WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.
UNUSUAL FIRE AND EXPLOSIONS HAZARDS
EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

---------- REACTIVITY DATA ----------

INCOMPATIBILITIES
STRONG OXIDIZING AGENTS
STRONG BASES
ACID CHLORIDES
ACID ANHYDRIDES
HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS
TOXIC FUMES OF:
CARBON MONOXIDE, CARBON DIOXIDE
HYDROGEN CHLORIDE GAS

---------- SPILL OR LEAK PROCEDURES ----------

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED
WEAR SELF-CONTAINED BREATHING APPARATUS, RUBBER BOOTS AND HEAVY RUBBER GLOVES.
SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL.
AVOID RAISING DUST.
VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.
WASTE DISPOSAL METHOD
DISSOLVE OR MIX THE MATERIAL WITH A COMBUSTIBLE SOLVENT AND BURN IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER.
OBSERVE ALL FEDERAL, STATE, AND LOCAL LAWS.

--- PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE ---

WEAR APPROPRIATE NIOSH/MSHA-APPROVED RESPIRATOR, CHEMICAL-RESISTANT GLOVES, SAFETY GOGGLES, OTHER PROTECTIVE CLOTHING.
SAFETY SHOWER AND EYE BATH.
USE ONLY IN A CHEMICAL FUME HOOD.
DO NOT BREATHE DUST.
AVOID CONTACT WITH EYES, SKIN AND CLOTHING.
AVOID PROLONGED OR REPEATED EXPOSURE.
READILY ABSORBED THROUGH SKIN.
WASH THOROUGHLY AFTER HANDLING.
HIGHLY TOXIC.
IRRITANT.
POSSIBLE TERATOGEN.
MUTAGEN.
CARCINOGEN.
KEEP TIGHTLY CLOSED.
STORE IN A COOL DRY PLACE.
LABEL PRECAUTIONARY STATEMENTS
HIGHLY TOXIC (USA DEFINITION)
TOXIC (EUROPEAN DEFINITION)
MAY CAUSE CANCER.
MAY CAUSE HERITABLE GENETIC DAMAGE.
TOXIC BY INHALATION, IN CONTACT WITH SKIN AND IF SWALLOWED.
IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.
POSSIBLE TERATOGEN.
READILY ABSORBED THROUGH SKIN.
TARGET ORGAN(S):

LIVER
KIDNEYS
IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE (SHOW THE LABEL WHERE POSSIBLE).

REGULATORY INFORMATION
THIS PRODUCT IS SUBJECT TO SARA SECTION 313 REPORTING REQUIREMENTS.

--------- ADDITIONAL PRECAUTIONS AND COMMENTS ---------

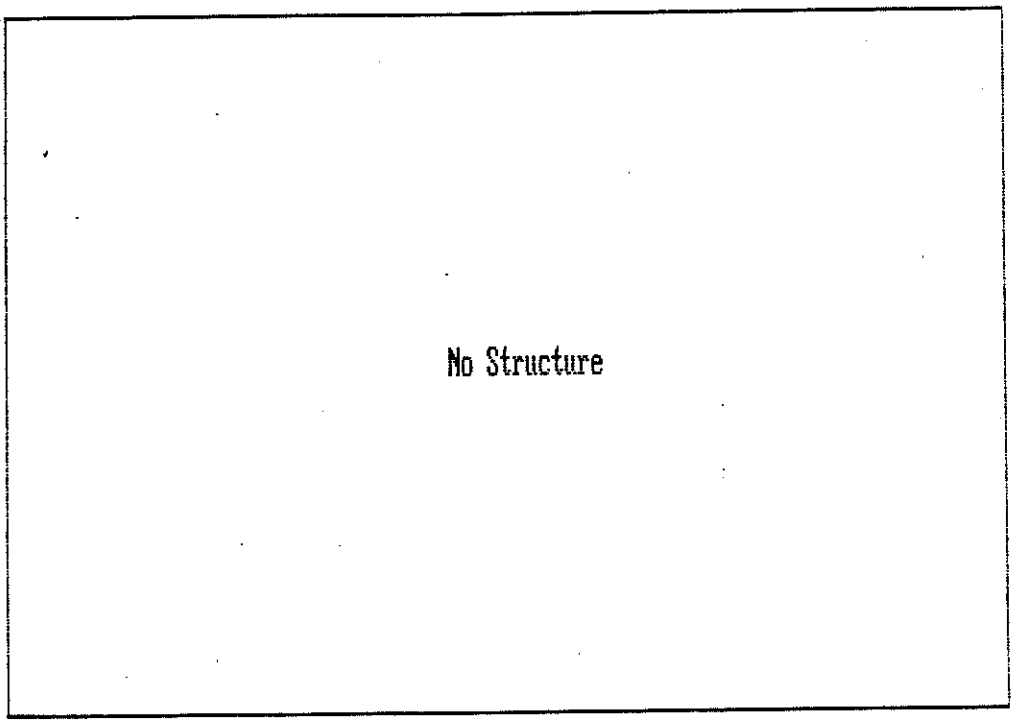
ADDITIONAL INFORMATION
MAY BE CONTAMINATED WITH A MIXTURE OF POLYCHLOROBENZODIOXINS.

THE ABOVE INFORMATION IS BELIEVED TO BE CORRECT BUT DOES NOT PURPORT TO BE ALL INCLUSIVE AND SHALL BE USED ONLY AS A GUIDE. SIGMA ALDRICH SHALL NOT BE HELD LIABLE FOR ANY DAMAGE RESULTING FROM HANDLING OR FROM CONTACT WITH THE ABOVE PRODUCT. SEE REVERSE SIDE OF INVOICE OR PACKING SLIP FOR ADDITIONAL TERMS AND CONDITIONS OF SALE.

MATERIAL SAFETY DATA SHEET Valid 8/92-10/92

Sigma-Aldrich Corporation
1001 West Saint Paul Ave. Milwaukee, WI 53233 USA

		Sigma	Aldrich
For Emergency Contact	USA/Canada	800-325-5832	800-231-8327
	Outside USA/Canada	314-771-5765	414-273-3850



---------- IDENTIFICATION ----------

PRODUCT #: 65545 NAME: METHANOL
CAS #: 67-56-1
MF: CH4O

SYNONYMS

ALCOOL METHYLIQUE (FRENCH) * ALCOOL METILICO (ITALIAN) * CARBINOL * COLONIAL SPIRIT * COLUMBIAN SPIRIT * COLUMBIAN SPIRITS (DOT) * METHANOL (DOT) * METANOLO (ITALIAN) * METHYL ALCOHOL * METHYL ALCOHOL (ACGIH,DOT,OSHA) * METHYLOL * METHYLALKOHOL (GERMAN) * METHYL HYDRATE * METHYL HYDROXIDE * METYLOWY ALKOHOL (POLISH) * MONOHYDROXYMETHANE * PYROXYLIC SPIRIT * RCRA WASTE NUMBER U154 * UN 1230 (DOT) * WOOD ALCOHOL * WOOD ALCOHOL (DOT) * WOOD NAPHTHA * WOOD SPIRIT *

---------- TOXICITY HAZARDS ----------

RTECS NO: PC1400000

METHANOL

IRRITATION DATA

SKN-RBT 20 MG/24H MOD	85JCAE -,187,86
EYE-RBT 40 MG MOD	UCDS** 3/24/70
EYE-RBT 100 MG/24H MOD	85JCAE -,187,86

TOXICITY DATA

ORL-MAN LDLO:6422 MG/KG
ORL-HMN LDLO:428 MG/KG
ORL-HMN LDLO:143 MG/KG
UNR-MAN LDLO:868 MG/KG
ORL-RAT LD50:5628 MG/KG
IHL-RAT LC50:64000 PPM/4H
IPR-RAT LD50:7529 MG/KG
IVN-RAT LD50:2131 MG/KG
ORL-MUS LD50:7300 MG/KG
IPR-MUS LD50:10765 MG/KG
SCU-MUS LD50:9800 MG/KG
IVN-MUS LD50:4710 MG/KG
ORL-MKY LD50:7 GM/KG
ORL-RBT LD50:14200 MG/KG
SKN-RBT LD50:15800 MG/KG
IPR-RBT LD50:1826 MG/KG
IVN-RBT LD50:8907 MG/KG
IPR-GPG LD50:3556 MG/KG
IPR-HAM LD50:8555 MG/KG

CMAJAX 128,14,83
NPIRI* 1,74,74
34ZIAG -,382,69
85DCAI 2,73,70
GTPZAB 19(11),27,75
NPIRI* 1,74,74
EVHPAZ 61,321,85
EVHPAZ 61,321,85
TXCYAC 25,271,82
EVHPAZ 61,321,85.
TXAPA9 18,185,71
EVHPAZ 61,321,85
TXAPA9 3,202,61
FAONAU 48A,105,70
NPIRI* 1,74,74
EVHPAZ 61,321,85
EVHPAZ 61,321,85
EVHPAZ 61,321,85
EVHPAZ 61,321,85

REVIEWS, STANDARDS, AND REGULATIONS

ACGIH TLV-TWA 200 PPM; STEL 250 PPM (SKIN) 85INA8 5,372,86
EPA FIFRA 1988 PESTICIDE SUBJECT TO REGISTRATION OR RE-REGISTRATION FEREAC 54,4388,89
MSHA STANDARD-AIR:TWA 200 PPM (260 MG/M3) (SKIN) DTLVS* 3,155,71
OSHA PEL:8H TWA 200 PPM (260 MG/M3) FEREAC 54,2923,89
OSHA PEL FINAL:8H TWA 200 PPM (260 MG/M3);STEL 250 PPM (SKIN) FEREAC 54,2923,89
NIOSH REL TO METHYL ALCOHOL-AIR:10H TWA 200 PPM;CL 800 PPM/15M MMWR** 37(S-7),19,88
NOHS 1974: HZD 45930; NIS 344; TNF 78840; NOS 203; TNE 737242
NOES 1983: HZD 45930; NIS 373; TNF 101075; NOS 225; TNE 1620617; TFE 388352
EPA GENETOX PROGRAM 1988, NEGATIVE: SHE-CLONAL ASSAY; CELL TRANSFORM.-SA7/SHE
EPA GENETOX PROGRAM 1988, NEGATIVE: N CRASSA-ANEUPLOIDY; IN VITRO SCE-NONHUMAN
EPA TSCA CHEMICAL INVENTORY, JUNE 1990
EPA TSCA SECTION 8(E) STATUS REPORT 8EHQ-0378-0108
ON EPA IRIS DATABASE
EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, MARCH 1992
NIOSH ANALYTICAL METHODS: SEE METHANOL, 2000
NTP CARCINOGENESIS STUDIES;SELECTED, JANUARY 1992

TARGET ORGAN DATA

SENSE ORGANS AND SPECIAL SENSES (OPTIC NERVE NEUROPATHY)
SENSE ORGANS AND SPECIAL SENSES (VISUAL FIELD CHANGES)
BEHAVIORAL (HEADACHE)
LUNGS, THORAX OR RESPIRATION (DYSPNAE)
LUNGS, THORAX OR RESPIRATION (OTHER CHANGES)
GASTROINTESTINAL (NAUSEA OR VOMITING)
ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES (RTECS) DATA IS PRESENTED HERE. SEE ACTUAL ENTRY IN RTECS FOR COMPLETE INFORMATION.

---------- HEALTH HAZARD DATA ----------

ACUTE EFFECTS

MAY BE FATAL IF SWALLOWED.
HARMFUL IF INHALED OR ABSORBED THROUGH SKIN.
VAPOR OR MIST IS IRRITATING TO THE EYES, MUCOUS MEMBRANES AND UPPER

RESPIRATORY TRACT.
CAUSES SKIN IRRITATION.
EXPOSURE CAN CAUSE:
DAMAGE TO THE EYES
DAMAGE TO THE LIVER
DAMAGE TO THE HEART
DAMAGE TO THE KIDNEYS
GASTROINTESTINAL DISTURBANCES
MAY CAUSE CONVULSIONS.
TARGET ORGAN(S):
EYES
KIDNEYS

FIRST AID

IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES OR SKIN WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING AND SHOES.
ASSURE ADEQUATE FLUSHING OF THE EYES BY SEPARATING THE EYELIDS WITH FINGERS.
IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.
IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS.
CALL A PHYSICIAN.
DISCARD CONTAMINATED CLOTHING AND SHOES.

ADDITIONAL INFORMATION

WARNING: CONTAINS METHANOL. MAY BE FATAL OR CAUSE BLINDNESS IF SWALLOWED. CANNOT BE MADE NONPOISONOUS.

---------- PHYSICAL DATA ----------

BOILING PT: 64.6 C
MELTING PT: -98 C
SPECIFIC GRAVITY: 0.791
VAPOR DENSITY: 1.1
VAPOR PRESSURE: 97.68 MM @ 20 C
410 MM @ 50 C

APPEARANCE AND ODOR

COLORLESS LIQUID

---------- FIRE AND EXPLOSION HAZARD DATA ----------

FLASHPOINT: 52 F BY:
AUTOIGNITION TEMPERATURE: 725 F
LOWER EXPLOSION LEVEL: 6%
UPPER EXPLOSION LEVEL: 36%

EXTINGUISHING MEDIA

CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.

SPECIAL FIREFIGHTING PROCEDURES

WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.

UNUSUAL FIRE AND EXPLOSIONS HAZARDS

EXTREMELY FLAMMABLE.
VAPOR MAY TRAVEL CONSIDERABLE DISTANCE TO SOURCE OF IGNITION AND FLASH BACK.

---------- REACTIVITY DATA ----------

INCOMPATIBILITIES

ACIDS
ACID CHLORIDES
ACID ANHYDRIDES
OXIDIZING AGENTS
REDUCING AGENTS

ALKALI METALS

HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS

TOXIC FUMES OF:
CARBON MONOXIDE, CARBON DIOXIDE

---------- SPILL OR LEAK PROCEDURES ----------

'S TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

EVACUATE AREA.
SHUT OFF ALL SOURCES OF IGNITION.
WEAR SELF-CONTAINED BREATHING APPARATUS, RUBBER BOOTS AND HEAVY RUBBER GLOVES.
COVER WITH DRY-LIME, SAND, OR SODA ASH. PLACE IN COVERED CONTAINERS USING NON-SPARKING TOOLS AND TRANSPORT OUTDOORS.
VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

WASTE DISPOSAL METHOD

BURN IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER BUT EXERT EXTRA CARE IN IGNITING AS THIS MATERIAL IS HIGHLY FLAMMABLE.
OBSERVE ALL FEDERAL, STATE, AND LOCAL LAWS.

--- PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE ---

WEAR APPROPRIATE NIOSH/MSHA-APPROVED RESPIRATOR, CHEMICAL-RESISTANT GLOVES, SAFETY GOGGLES, OTHER PROTECTIVE CLOTHING.
MECHANICAL EXHAUST REQUIRED.
SAFETY SHOWER AND EYE BATH.
DO NOT BREATHE VAPOR.
AVOID CONTACT WITH EYES, SKIN AND CLOTHING.
AVOID PROLONGED OR REPEATED EXPOSURE.
DO NOT USE IF SKIN IS CUT OR SCRATCHED. WASH THOROUGHLY AFTER HANDLING.
POISON
IRRITANT.
KEEP TIGHTLY CLOSED.
KEEP AWAY FROM HEAT, SPARKS, AND OPEN FLAME.
HYGROSCOPIC
STORE IN A COOL DRY PLACE.
KEEP CONTAINER TIGHTLY CLOSED.
KEEP AWAY FROM SOURCES OF IGNITION. NO SMOKING.
DO NOT BREATHE VAPOR.
DANGER:
POISON
MAY BE FATAL OR CAUSE BLINDNESS IF SWALLOWED. VAPOR HARMFUL.
CANNOT BE MADE NON-POISONOUS.
CAUSES IRRITATION.
TARGET ORGAN(S):
EYES
KIDNEYS

REGULATORY INFORMATION

THIS PRODUCT IS SUBJECT TO SARA SECTION 313 REPORTING REQUIREMENTS.

APPENDIX C

PENTACHLOROPHENOL FIELD SCREENING INFORMATION

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY

IL 532-0357
ADM 39
054-002

Subject UNION PACIFIC RAILROAD

Data RCRA CLOSURE

Reviewed by WILLIAM J SINNOTT II Date 6-28-93

NOTICE of CLOSURE

June 15, 1993

Bureau of Land File

Pam Howard

Union Pacific Railroad/Dupo
C-699 & C-700
Public Notice #:93013

1630355007/St. Clair
Union Pacific Railroad/Dupo
ILD 984774851
RCRA Closure

Notice of Closure

Notice of Closure of Union Pacific Railroad's hazardous waste storage units located in Dupo first appeared in the Granite City Press Record on May 6, 1993. The public comment periodended June 6, 1993. No comments were received by this office.

cc: Bill Sinnot
Virginia Wood
IEPA Region 6/Collinsville

Facility No.: 1630355007 DATE: April 26, 1993

Public Notice No.: 93013

NOTICE OF CLOSURE
CLOSURE NO. C-700 & 699

Plans to close a present drum storage area and a former drum storage area at the Union Pacific Railroad (UPRR) rail yard in Dupo, Illinois have been submitted to the Illinois Environmental Protection Agency (IEPA) pursuant to Subpart G of 35 Ill. Adm. Code 725. The hazardous waste units consist of four trailers which sit on a concrete slab surrounded by an 8-inch concrete curb. The storage areas contain or had contained drums containing liquids and solids contaminated with pentachlorophenol (PCP). The drums originated from a March 1990 spill and emergency cleanup at the UPRR Mitchell rail yard near Collinsville, Illinois. The facility will remain in operation during and following closure of the hazardous waste management units described in this notice.

At this time the IEPA is also requesting that the facility provide information concerning any prior release of hazardous waste constituents from any solid waste management facility on the site.

Within 30 days of the first publication date of this notice, interested persons are invited to submit written comments on the proposed closure plans, request modifications of the plans, or provide information on the release, at any time, of hazardous waste constituents from the facility. Written comments must be addressed to IEPA, Government and

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY

IL 532-0357
ADM 39
054-002

Subject UNION PACIFIC RAILROAD

Data RCRA Closure

Reviewed by WILLIAM T SINNOTT II Date 6-28-93

SWMU CERTIFICATION REQUEST

JKL
File

217/782-6762

CERTIFIED MAIL #: P 373 313 278
RETURN RECEIPT REQUESTED

April 22, 1993

Union Pacific R.R.
Hwy 3 & Carondelet Road
Dupo, Illinois 62239

Re: IEPA #: 1630355007 -- St. Clair County
Facility Name: Union Pacific R R
USEPA ID#: ILD984774851
RCRA Closure File

Dear Environmental Coordinator:

As you are aware, we are currently evaluating the request for closure of your facility as referenced above, and which is regulated under the Resource Conservation and Recovery Act (RCRA).

Under Section 206 and Section 233 (copies enclosed) of the Hazardous and Solid Waste Amendments of 1984, all facilities "seeking a permit" (taken to mean interim status facilities) must provide for corrective action for all releases of hazardous waste or constituents from any solid waste management unit, regardless of the time at which waste was placed in the Unit. Please note that both hazardous and non-hazardous wastes can meet the definition of solid waste under 40 CFR 261.2.

Consequently, we must determine whether such releases have ever occurred at the facility site. If they have, we must ensure that any necessary corrective actions either have been taken, or will be taken, pursuant to a decision on your closure plan. An important part of our determination includes your willingness (or unwillingness) to complete the enclosed certification form. Please read it carefully, complete it, and either sign and return it, or return it to us unsigned with a cover letter of explanation, within 30 days of the date of this letter.

Please call the Permit Section at 217/782-6762 if you have any questions, or wish to discuss this matter further.

Very truly yours,

Lawrence W. Eastep, P.E., Manager
Permit Section
Division of Land Pollution Control
Bureau of Land

Enclosures

cc: George Hamper, USEPA - Region V

IL 532-1428
LPC 217 Rev. 3/92

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY

IL 532-0357
ADM 39
054-002

Subject UNION PACIFIC RAILROAD

Data RCRA CLOSURE

Reviewed by WILLIAM T SINNOTT II Date 6-28-93

CLOSURE PLAN CHECKLIST & NOTES

OUT SW-846
METHOD 8270

TABLE 2.
(Continued)

Semivolatiles	Estimated Quantitation Limits[b] Ground water µg/L	Low Soil/Sediment[1] µg/Kg
Naphthalene	10	660
1,4-Naphthoquinone	10	ND
1-Naphthylamine	10	ND
2-Naphthylamine	10	ND
Nicotine	20	ND
5-Nitroacenaphthene	10	ND
2-Nitroaniline	50	3300
3-Nitroaniline	50	3300
4-Nitroaniline	20	ND
5-Nitro-o-anisidine	10	ND
Nitrobenzene	10	660
4-Nitrobiphenyl	10	ND
Nitrofen	20	ND
2-Nitrophenol	10	660
4-Nitrophenol	50	3300
5-Nitro-o-toluidine	10	ND
4-Nitroquinoline-1-oxide	40	ND
N-Nitrosodibutylamine	10	ND
N-Nitrosodiethylamine	20	ND
N-Nitrosodiphenylamine	10	660
N-Nitroso-di-n-propylamine	10	660
N-Nitrosopiperidine	20	ND
N-Nitrosopyrrolidine	40	ND
Octamethyl pyrophosphoramide	200	ND
4,4'-Oxydianiline	20	ND
Parathion	10	ND
Pentachlorobenzene	10	ND
Pentachloronitrobenzene	20	ND
Pentachlorophenol	50	3300
Phenacetin	20	ND
Phenanthrene	10	660
Phenobarbital	10	ND
Phenol	10	660
1,4-Phenylenediamine	10	ND
Phorate	10	ND
Phosalone	100	ND
Phosmet	40	ND
Phosphamidon	100	ND
Phthalic anhydride	100	ND
2-Picoline	ND	ND
Piperonyl sulfoxide	100	ND
Pronamide	10	ND
Propylthiouracil	100	ND
Pyrene	10	660

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY

IL 532-0357
ADM 39
054-002

1 of 8

Subject DUPO, ILLINOIS RAIL YARD

Data

Reviewed by WILLIAM J SINNOTT II Date 4/20/93

SECTION B: CLOSURE PLAN

1. DESCRIPTION OF HAZARDOUS WASTE OPERATION AND PROPOSED CLOSURE

Y) Y) a) A DESCRIPTION IS PROVIDED ON P1 of 8 OF THE SUBMITTAL OF HAZARDOUS WASTE OPERATIONS

Y) Y) b) ON PAGE 1 of 8 OF THE SUBMITTAL A DESCRIPTION IS PROVIDED FOR ALL HAZARDOUS WASTE UNITS AT THE FACILITY

Y) Y) c) THEY IDENTIFY ON P1 THE FORMER DRUM STORAGE AREA THAT IS GOING THRU CLOSURE

N) N) d) THEY DO NOT IDENTIFY THE UNITS going TO REMAIN OPEN

NOTE TO READER: THIS IS NOT A MAJOR ISSUE

Y) Y) e) ON PAGE 2 THEY IDENTIFY THE MAXIMUM INVENTORY OF WASTES AS 114 DRUMS

Y) Y) f) P4 DESCRIBES THE STEPS TO BE TAKEN FOR DECONTAMINATION OF FACILITY EQUIPMENT

~~Y) Y)~~ N) g) THEY DO ~~NOT~~ SPECIFY ~~THE EXPECTED~~ ON P3 YEAR OF CLOSURE FOR ALL UNITS AT THE FACILITY; ~~HOWEVER WE WILL TELL THEM THEY NEED TO CLOSE WITHIN 180 DAYS OF APPROVAL OF THIS PLAN.~~

Y) Y) h) A SCHEDULE of 8 CLOSURE IS IN APPENDIX A AND P3

N/A i)

Y) Y) j) THE HAZARDOUS WASTE IS DEFINED AS F027 OR PENTACHLOROPHENOL WHICH IS CORRECT

N) N K) THE GROUNDWATER/SURFACE WATER USE IN THE AREA WAS NOT IDENTIFIED HOWEVER THIS IS NOT A MAJOR ISSUE

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY

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Subject DUPO, ILLINOIS RAIL YARD

Data

Reviewed by WILLIAM T. SINNOTT II Date 4/23/93

2. PUBLIC INVOLVEMENT

N) N) I HAVE YET TO SEE A NEWSPAPER NOTICE POSTING

3. CLOSURE TIME LIMITS

N) N) a) THEY DO NOT MENTION THE 7 DAY LIMIT FOR TREATMENT, REMOVAL OR DISPOSAL OF HAZARDOUS WASTES.

Y) Y) b) ON PAGE 3 THEY MENTION THE 180 DAY LIMIT FOR COMPLETION OF CLOSURE ACTIVITIES

N/A c)
N/A d)

4. DISPOSAL OR DECONTAMINATION OF EQUIPMENT

Y) Y) a-c) COVERED ON P 6

5. CERTIFICATION OF CLOSURE

N) N) a) THERE IS NO PROVISION FOR CERTIFICATION BY OWNER OR OPERATOR WITHIN 60 DAYS FOLLOWING CLOSURE ⇒ HOWEVER WE WILL PUT THIS INFORMATION IN THE CLOSURE CERTIFICATION.

Y) Y) b) THIS INFORMATION IS CONTAINED ON P 7 OF THE SUBMITTAL

Y) Y) c) THIS INFORMATION IS CONTAINED ON P 7 OF THE SUBMITTAL

STATE OF ILLINOIS
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3

Subject DUPO, ILLINOIS RAIL YARD

Data

Reviewed by WILLIAM T SINNOTT II Date 4/23/93 - 4/26/93

7. CLOSURE OF CONTAINER STORAGE AREA

Y) Y) a.) ① THE GRID SPACING SAMPLING ON PAGE 5 LOOKS FINE

N) N) ② THE ADJACENT AREAS WERE NOT PROPOSED TO BE SAMPLED FOR HOWEVER I DON'T FEEL THAT THIS IS A MAJOR ISSUE

b) SOIL ANALYSIS PLAN

Y) Y) ① THEY SAY THEY WILL ANALYZE FOR 8270 WHICH WILL INCLUDE ALL HAZARDOUS CONSTITUENTS

Y) Y) ② THE DETECTION LIMITS SHOULD BE FINE IF THEY DO 8270 PROPERLY

N) N) ③ THEY ARE NOT CLEAR ON THE SAMPLING INCREMENTS AND TOTAL DEPTH OF SAMPLING. HOWEVER WE WILL TELL THEM TO ANALYZE AT 0"-6" AND 18"-24" DEPTHS

N) N) ④ THEY DID NOT MENTION ATTACHMENT 7, HOWEVER WE WILL TELL THEM IN OUR CLOSURE PLAN APPROVAL LETTER

Y) Y) ⓒ REMOVAL OF CONTAMINATED SOIL IS COVERED ON P6

N) N) ⓓ CLEANUP STANDARD IS NOT MENTIONED

Y) Y) ⓔ POST CLOSURE CARE IS DISCUSSED ON P8 THEY SAY POST CLOSURE CARE IS NOT NEEDED

I) Y) f-h) COVERED ON P6 OF THE SUBMITTAL
Y) Y) i) FIGURE 3
Y) Y) j-k) PICTURE OF AREA SHOWS J-K

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY

IL 532-0357
ADM 39
054-002

Subject DUPO, ILLINOIS RAIL YARD

Data

Reviewed by WILLIAM T SINNOTT II Date 4-27-93

B INTRODUCTION TO PROJECT

SUBMITTAL BY NAME : DUPO, ILLINOIS RAIL YARD

DATE of SUBMITTAL : APRIL 9, 1993

RECEIVED DATE : APRIL 13, 1993

NAME of FACILITY : UNION PACIFIC RAILROAD
DUPO, ILLINOIS RAIL YARD

FACILITY LOCATION : DUPO, ILLINOIS

SUBMITTED BY : USPCI, INC.

WHY SENT IN : THE FACILITY WAS IN VIOLATION OF THE 90 DAY STORAGE LIMIT

---

1) IS IT A FIRST SUBMITTAL : YES

2) IS IT A MODIFICATION TO A PREVIOUS SUBMITTAL : NO

3) WHAT HWMU'S ARE BEING ADDRESSED BY THIS CLOSURE PLAN : 1 SOI

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY

IL 532-0357
ADM 39
054-002

Subject DUPO, ILLINOIS RAIL YARD

Data

Reviewed by WILLIAM T SCHOTT II Date 4/27/93

REVIEW OF FILES / PERTINENT SITE HISTORY

THE MOST IMPORTANT INFORMATION IS THAT THIS IS WHERE THE DRUMS WERE ORIGINALLY STORED BEFORE THE DRUMS WERE MOVED TO THE STORAGE IN TRAILERS

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY

IL 532-0357
ADM 39
054-002

Subject DUPO, ILLINOIS RAILYARD

Data

Reviewed by WILLIAM T SINNOTT II Date 4-27-93

REVIEW OF FILES / PERTINENT SITE HISTORY

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY

IL 532-0357
ADM 39
054-002

Subject Union Pacific Rail Roads

Data

Reviewed by William J. Innnatte Date 5-27-93

FINAL ACTION TO BE TAKEN

IT IS MY PROFESSIONAL OPINION THAT WE SHOULD APPROVE THIS CLOSURE PLAN.

Attachment 3
For IEPA Use Only
Revised 3/2/89

CLOSURE PLAN REVIEW NOTES AND CHECKLIST
SECTION A: REVIEW NOTES
(attach notes or references as necessary)

Facility Name: Union Pacific Railroad Company Log No.: 699

Location (County, Municipality, Township, Range, Section): St Clair County Section 21 T1N R10W

State ID: _____ U.S. EPA ID: ILD 984778851

1st Submittal: 4/13/93 Reviewer: William T. Innott III Mailed: Due 7/12/93

2nd Submittal: _____ Reviewer: _____ Mailed: _____

Regulated Units at the Facility and Their Capacities

Unit	Approved Part A	HWDMS	Closure Plan	Units Closing	Units Remaining Open
501	114 DRUMS	55 GALLON DRUMS			
		Front			
		&			
		Back			

_____ Partial Closure or X Final (full) Closure

X Proposed "Clean" Closure or _____ "Dirty" Closure

Status of Facility after Closure: Won't Generate Any Haz. Waste

Are any new treatment processes proposed to minimize or render nonhazardous, hazardous waste? No Explain: _____

Will a change in the Part A be necessary if the closure is approved? N/A Don't Have

Is the facility requesting additional time to start or complete closure than allowed? No Explain: _____

Size or area of each unit closing: 60' x 30'

Identify wastes managed in each unit (include hazardous waste codes):
PENTACHLOROPHENOL F027

Volume of wastes disposed of, or located in, units at the facility: _____
114 (55 GALLON DRUMS)

Sampling grid spacing 12' Satisfactory? Yes

Total number of samples from unit = 8

Were background samples taken from proper soil horizon? N/A

Total number of background samples (minimum of 10 per strata) = N/A

Submitted to COT on _____ (date)

Recommendations from COT dated _____

Reviewed by CROPA on N/A (date)

CROPA memo dated N/A

Identify soil and/or groundwater clean-up levels. (Give basis, i.e., closure plan, COT/CROPA recommendation, PQL, etc.)

Is the portion of the sample to be tested appropriate? YES

Approximate volume of waste to be removed: N/A (yds. or gallons)

Approximate volume of underlying and surrounding soil and liner to be removed:

How is site to be capped or otherwise restored? N/A

Are there any non-RCRA Solid Waste Management Units? ? Explain: I HAVE YET TO SEE A SWMU CERTIFICATION

Have there been any releases from the SWMUs?

Explain: ? I HAVE YET TO SEE

How is the groundwater to be addressed for the closing unit? NOT ADDRESSED

Is groundwater monitored? No

Is groundwater contaminated? ?

What is the facility's Subpart F compliance status?

If the facility is in assessment, will the assessment be completed prior to final closure? I DON'T THINK IT'S IN ASSESSMENT

Is additional groundwater monitoring warranted in closure plan? No

Explain: _____

_____

Is groundwater monitoring warranted after closure? _____ Explain: _____

I DON'T THINK SO

_____

_____

Is the facility being referred to USEPA for corrective action? _____

If so, indicate the type of enforcement: 3013 Order _____

3008(h) Order _____

3005(c) Action _____

Final Action: Approve APPROVE, Disapprove _____, Modify _____

Schedule for closure: Date of Plan Approval: _____

Start closure: _____

Complete closure: _____

Certification due to IEPA: _____

I KNOW THE ATTORNEY GENERAL'S OFFICE IS PREPARING A CONSENT ORDER

SECTION B: CLOSURE PLAN CHECKLIST

LEGEND

PR: Provided

AD: Adequate

NA: Not Applicable

Note: Respond to questions with Y for yes and N for no

1. Description of hazardous waste operation and proposed closure (725.212(a) and (b))

PR	AD	NA		
Y	Y	—	a.	description provided of hazardous waste operations
Y	Y	—	b.	description provided for all hazardous waste units at the facility
Y	Y	—	c.	identification of units closing
Y/N	Y/N	—	d.	identification of units remaining open
Y/N	Y/N	—	e.	maximum inventory of wastes at any time during life of facility (should correspond to Part A volumes)
Y	Y	—	f.	description of steps to be taken for decontamination of facility equipment (725.212(b)(4))
N	N	—	g.	expected year of closure for all units at the facility (725.212(b)(1))
Y	Y	—	h.	schedule of closure for all units (725.212(b)(6) and (b)(7))
—	—	N/A	i.	plan submitted 180 days prior to initiation of closure (725.212(d)(1))
Y	Y	—	j.	all hazardous wastes and hazardous constituents properly identified
—	—	—	k.	groundwater/surface water use in the area identified

2. Public Involvement (725.212(d)(4))

N	N	—	a.	newspaper notice posted
—	—	—	b.	public hearing requested?
—	—	—	c.	public hearing granted?
—	—	—	d.	notice of public hearing 30 days prior to hearing

3. Closure time limits (725.213)

N	N	—	a.	90-day limit for treatment, removal or disposal of hazardous wastes
Y	Y	—	b.	180-day limit for completion of closure activities
—	—	N/A	c.	extension of time limits
—	—	N/A	d.	justification provided for extension of time limits?

525-1860

4. Disposal or decontamination of equipment (725.214)

PR	AD	NA		
Y	Y	—	a.	proper disposal of facility equipment and structures, or
Y	Y	—	b.	decontamination - removal of all hazardous wastes and residues
Y	Y	—	c.	decontamination of equipment used for cleanup
Y	Y	—	d.	decontamination method
Y	Y	—	e.	RCRA wastes and residues to be handled and disposed as hazardous waste

5. Certification of closure (725.215, 725.216 and 725.219)

N	N	—	a.	provision for certification by owner or operator within 60 days following closure
Y	Y	—	b.	provision for certification by independent registered Professional Engineer that facility was closed in accordance with the approved closure plan
Y	Y	—	c.	provision for Closure Documentation Report to document closure activities
—	—	N/A	d.	survey plat and notification in deed to Agency and appropriate local government office
—	—	N/A	e.	certification to Agency that notification in deed has been made (725.219(b)(2))

6. Post-Closure Care Plan required? (725.217)

—	—	N/A	Disposal units closing after 1/26/83 are required to obtain a Post-Closure Permit. Advise facility that a PCC Plan will be called in at a later date.

7. Closure of container storage area (S01).

			a.	soil sampling plan
Y	Y	—		grid spacing
N	N	—		adjacent areas to be sampled for spills and/or windblown particulates
			b.	soil analysis plan
Y	Y	—		includes all hazardous constituents
Y	Y	—		detection limits
N	N	—		sampling increments and total depth of sampling
N	N	—		sample handling and analysis (40 CFR 261, App. III; SW-846; Attachment 7 of this document)
Y	Y	—	c.	removal of contaminated soil
N	N	—	d.	cleanup standard
Y	Y	—	e.	post-closure care in lieu of clean closure
Y	Y	—	f.	decontamination of facility
Y	Y	—	g.	decontamination of equipment
Y	Y	—	h.	disposal of cleaning waste and residue

PR	AD	NA		
Y	Y	—	i.	scale drawing of storage area
Y	Y	—	j.	surface description (asphalt, concrete, aggregate, soil)
Y	Y	—	k.	structural integrity and containment devices (cracks, joints, deterioration, curbs, roof)

8. Closure of tank storage or treatment units (S02, T01 -- 725.297)

—	—	—	a.	scale drawing of storage area, including secondary containment structures, sumps and drainage pathways
—	—	—	b.	description of materials used to construct tanks, ancillary equipment and secondary containment structures
—	—	—	c.	present condition of tanks, ancillary equipment and secondary containment structures (i.e., structural integrity and surface condition)
			d.	removal of all hazardous wastes and residues from:
—	—	—		tanks
—	—	—		pipes and discharge control equipment
—	—	—		discharge confinement structures
—	—	—	e.	decontamination of equipment
—	—	—	f.	soil testing beneath and around tank, including secondary containment areas, to verify that no spills or leaks have occurred
—	—	—		includes all hazardous constituents
—	—	—		detection limits
—	—	—		sampling increments and total depth of sampling
—	—	—		sample handling and analysis (40 CFR 261, App. III; SW-846; Attachment 7 of this document)
—	—	—	g.	cleanup standard
—	—	—	h.	removal of contaminated soil
—	—	—	i.	removal of tank (required by State Fire Marshall for underground tanks which contained flammable materials)

9. Closure and post-closure for surface impoundments (S04, D83, T02 - 725.328)

—	—	—	a.	removal of standing liquids
—	—	—	b.	removal of wastes and waste residues
—	—	—	c.	removal of liner
—	—	—	d.	removal of underlying and surrounding contaminated soil
—	—	—	e.	cleanup standard
—	—	—	f.	management of removed material as hazardous waste unless determined to be nonhazardous under 721.103(c)
—	—	—	g.	post-closure care in lieu of material removal (725.328(c)) (40 CFR 265.228(a)(2), March 19, 1987)
—	—	—	h.	dewatering, stabilization or other treatment of remaining wastes to provide cover support and/or render waste nonhazardous (40 CFR 265.228(a)(2), March 19, 1987)
—	—	—	i.	request for modification of Part A to include T02 if stabilization or treatment is proposed

PR	AD	NA		
			j.	modification of post-closure requirements due to mitigating factors (725.217(d))
N/A			k.	soil sampling plan
—	—	—		grid spacing
—	—	—		adjacent areas to be sampled for spills and/or windblown particulates
			l.	soil analysis plan
—	—	—		includes all hazardous constituents
—	—	—		detection limits
—	—	—		sample handling and analysis (40 CFR 261, App. III; SW-846; Attachment 7 of this document)
—	—	—	m.	groundwater monitoring provided to verify clean closure (724 or 725, Subpart F)

10. Closure and post-closure of <u>waste piles</u> (S03 725.358)

—	—	—	a.	removal or decontamination of all waste residues
			b.	removal or decontamination of contaminated:
—	—	—		liners
N/A —	—	—		subsoils
—	—	—		structures and equipment (contaminated with leachate or waste)
SOIL —	—	—	c.	management of removed materials as hazardous waste unless determined to be nonhazardous according to 721.103(c) & (d)
UNIT —	—	—	d.	post-closure care provided in accordance with 725.410 if all contaminated subsoils can't be removed or decontaminated
			e.	soil sampling plan
—	—	—		grid spacing
—	—	—		adjacent areas to be sampled for spills, tracking and/or windblown particulates
			f.	soil analysis plan
—	—	—		includes all hazardous constituents
—	—	—		detection limits
—	—	—		sampling increments and total depth of sampling
—	—	—		sample handling and analysis (40 CFR 261, App. III; SW-846; Appendix 7 of this document)

11. Closure and post-closure care objectives for <u>land treatment</u> (D81 725.380(a))

N/A —	—	—	a.	control mitigation of hazardous wastes and hazardous waste constituents into the groundwater
SOIL —	—	—	b.	control release of contaminated run-off into surface water
UNIT —	—	—	c.	control release of airborne particulate contaminants
—	—	—	d.	compliance with food chain crop requirements (725.376)

12. Considerations to be addressed in land treatment closure and post-closure plans (725.380(b))

PR	AD	NA		
—	—	—	a.	type and amount of hazardous wastes and Appendix H hazardous constituents which are contained in the waste
—	—	—	b.	mobility of hazardous wastes and constituents
—	—	—	c.	site location, topography and surrounding land use and the related potential effects of pollutant migration
—	—	—	d.	climate (net precipitation)
—	—	—	e.	soil profile and soil properties
—	—	—	f.	geologic profile
—	—	—	g.	surface and subsurface hydrology
—	—	—	h.	unsaturated zone monitoring information (725.378)
—	—	—	i.	type, concentration and depth of hazardous waste migration
—	—	—	j.	removal of contaminated soils
—	—	—	k.	cleanup standards
—	—	—	l.	function of final cover
—	—	—	m.	engineering characteristics of final cover
—	—	—	n.	groundwater monitoring

13. Requirements during land treatment closure period (725.380(d))

—	—	—	a.	unsaturated zone monitoring
—	—	—	b.	maintain run-on control system (725.372(b))
—	—	—	c.	maintain run-off control system (725.372(c))
—	—	—	d.	control wind dispersal of particulates

14. Certification by qualified soil scientist in lieu of a registered Professional Engineer for closure of land treatment units (725.380(e))

—	—	—

15. Closure of incinerators (T03)

—	—	—	a.	removal of all hazardous wastes and hazardous waste residues, including ash, scrubber waters and scrubber sludges
—	—	—	b.	management of residues as hazardous wastes unless determined to be nonhazardous according to 721.103(c) & (d)

16. Closure of thermal treatment units (725.481)

—	—	—	a.	removal of hazardous waste and hazardous waste residues, including ash
—	—	—	b.	management of residues as hazardous waste unless determined to be nonhazardous according to 725.103(c) & (d)

17. Closure of chemical, physical and biological treatment units (725.504)

—	—	—	a.	removal of all hazardous wastes and hazardous waste residues from treatment process or equipment, discharge control equipment and discharge confinement structures

N/A Soil Unit

PR AD NA

___ ___ ___ b. management of residues as a hazardous waste unless determined to be nonhazardous according to 721.103(c) & (d)

ALL DISPOSAL UNITS

18. Objective of closure and post-closure plans (725.410(b))

N/A Soil Unit

___ ___ ___ a. control of pollutant migration from facility via groundwater, surface water and air

___ ___ ___ b. control of ponding and surface water infiltration

___ ___ ___ c. erosion, run-on and run-off control

19. Considerations for achievement of closure objectives (725.410(c))

___ ___ ___ a. type and amount of hazardous wastes and Appendix H hazardous constituents which are contained in the waste

___ ___ ___ b. mobility and the expected rate of migration of pollutants

N/A Soil Unit

___ ___ ___ c. site location, topography and surrounding land use and the related potential effects of pollutant migration (proximity to groundwater, surface water and drinking water)

___ ___ ___ d. climate, including total amount, net amount, frequency and pH of rainfall

___ ___ ___ e. engineering characteristics of cover, including material, final surface contours, thickness, porosity, slope and length of run of slope

___ ___ ___ f. geological and soil profiles

___ ___ ___ g. surface and subsurface hydrology

___ ___ ___ h. soil balance analysis if on-site soils are to be used for cover and vegetative layer

20. Cover design (725.410(a))

___ ___ ___ a. grain size analysis and grain size requirements

___ ___ ___ b. soil classification -- USDA textural and Unified Soil Classification

N/A Soil Unit

___ ___ ___ c. compaction requirements -- should be 90-95% of ASTM D698 (Standard Proctor) density, compacted at a moisture content 3-5% above optimum moisture content

___ ___ ___ d. type of vegetation proposed

___ ___ ___ e. hydraulic conductivity

___ ___ ___ f. slope stability analysis

___ ___ ___ g. synthetic membrane specifications

___ ___ ___ h. depth of frost penetration and its effect on the cover system

___ ___ ___ i. erosion control

___ ___ ___ j. gas collection system

___ ___ ___ k. water balance analysis to estimate infiltration

___ ___ ___ l. settlement/subsidence effects considered

21. Construction procedures for cover (725.410(a))

PR	AD	NA		
—	—	—	a.	equipment requirements -- sheepsfoot roller, disk and water truck or other provisions for moisture control
—	—	—	b.	lift thickness -- should be 8 inches (loose thickness) or less
—	—	—	c.	construction QA/QC -- number of compaction tests, hydraulic conductivity tests, grain size tests, etc.
—	—	—	d.	hydraulic conductivity testing conducted in accordance with IEPA guidance

22. Notice to local land authority (725.216 and 725.219)

—	—	—	a.	survey plat submitted to the Agency and to County Recorder with closure certification
—	—	—	b.	note on plat which states owner's and operator's obligation to restrict disturbance of the site per 725.217(c)
—	—	—	c.	record provided of type, location and quantity of hazardous waste disposed of within each cell or area of the facility, including wastes disposed prior to January 12, 1981 (725.219(a))

23. Notice in deed to property (725.219)

—	—	—	a.	recorded on deed or other instrument which will be examined during a title search that the land has been used to manage hazardous waste
—	—	—	b.	copy of this instrument and a certification from the owner/operator that it has been properly recorded

24. Maintenance requirements -- activities and frequencies (725.217(a); 725.218(c); 725.410(d))

—	—	—	a.	integrity of final cover or containment structures
—	—	—	b.	leachate collection, removal and treatment systems
—	—	—	c.	groundwater monitoring system
—	—	—	d.	gas collection and control system (if provided)
—	—	—	e.	benchmarks
—	—	—	f.	name, address and phone number for post-closure care contact person (725.218(c)(3))

25. Security

—	—	—	a.	restricted access, if necessary
—	—	—	b.	security provided, if necessary (725.217(b))

26. Groundwater monitoring (725.217(a)(1); 725.218(a)(1); 725.191 to 725.193)

N/A

PR	AD	NA		
SOI UNIT			a.	description of groundwater monitoring system, activities and frequencies for post-closure period (725.191; 725.218(a)(1))
			b.	sampling and analysis plan (725.192)
			c.	outline of groundwater quality assessment program (725.193)

ALL FACILITIES

27. Closure performance standard (725.211)

Y	Y		a.	minimizes further maintenance
Y	Y		b.	protects human health and environment
Y	Y		c.	addresses all hazardous constituents (Part 721, Appendix H)

28. Training requirements for cleanup activities

			a.	provisions made to ensure that site workers will receive training in accordance with 29 CFR, Part 1910

DON'T HAVE A PART A

29. Part A Status

			a.	Part A and HWDMS reviewed
			b.	discrepancies between units and design capacities in Part A, HWDMS and closure plan resolved
			c.	for complete closure -- all units closed or withdrawn
			d.	revised Part A or withdrawal request to be submitted with closure certification

30. SWMU status

HAVE YET TO SEE SWMU CERT.

			a.	initial screening completed
			b.	initial screening previously submitted _____
			c.	environmentally significant information found during file search
			d.	Certification of Continuing Releases received from facility
			e.	units identified by facility consistent with those found during file search
			f.	releases indicated on certification
			g.	releases to be cleaned up under closure
			h.	releases to be referred to US EPA for action
			i.	SWMU's not previously identified discovered during closure?

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY

IL 532-0357
ADM 39
054-002

Subject Union Pacific Rail Road Company

Data

Reviewed by William T Sinnott II Date 6-28-93

Cover Letter & Submittal

EnSys RISC® Test System

PENTA in Soil

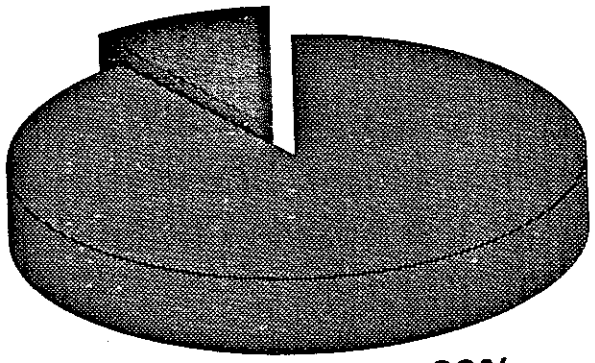
A FIELD ANALYTICAL TEST FOR PENTACHLOROPHENOL IN SOIL

TEST CHARACTERISTICS

The PENTA RISC® Soil Test is a field-compatible immunoassay-based test for pentachlorophenol in soil. It can be used to measure pentachlorophenol down to 0.5 ppm. For ease of use on-site, the PENTA RISC® Soil Test provides an accurate semi-quantitative (absence/presence) result. The test is designed to provide the absence/presence indication at a set concentration level. The user can test at any pentachlorophenol concentration to suit the actual site action level(s).

The PENTA RISC® Test is specific to pentachlorophenol with very little sensitivity to potential interferents such as chlorinated benzenes, creosote, petroleum hydrocarbons, and chromated copper arsenate.

< 12% False Positives



> 88% Correlation to Lab Methods

ACCURACY

The PENTA RISC® Test has been rigorously tested against the standard laboratory methods, SW-846 Method 8270, using actual contaminated samples. It has been shown to correlate extremely well with the laboratory-based GC/MS test for pentachlorophenol. In particular, a very low occurrence rate (<1%) of false negative results has been observed.

SENSITIVITY

Compound	Minimum Detection Level (ppm)
pentachlorophenol	0.5

ADVANTAGES OF USING THE PENTA RISC® TEST SYSTEM

The PENTA RISC® Test System enables the environmental professional to obtain analytical results in the field at the time of sampling. On-site analytical results eliminate the need to experience the long delays and high prices inherent in laboratory-based instrumental analytical methods. The application of field methods can result in substantial project savings from:

- ☐ Reduced equipment and personnel costs
- ☐ Reduced analytical costs

In fact, overall project quality can be increased by more precisely defining the boundaries of contaminated soil through intelligent sampling and testing in the field using the PENTA RISC® Test System.

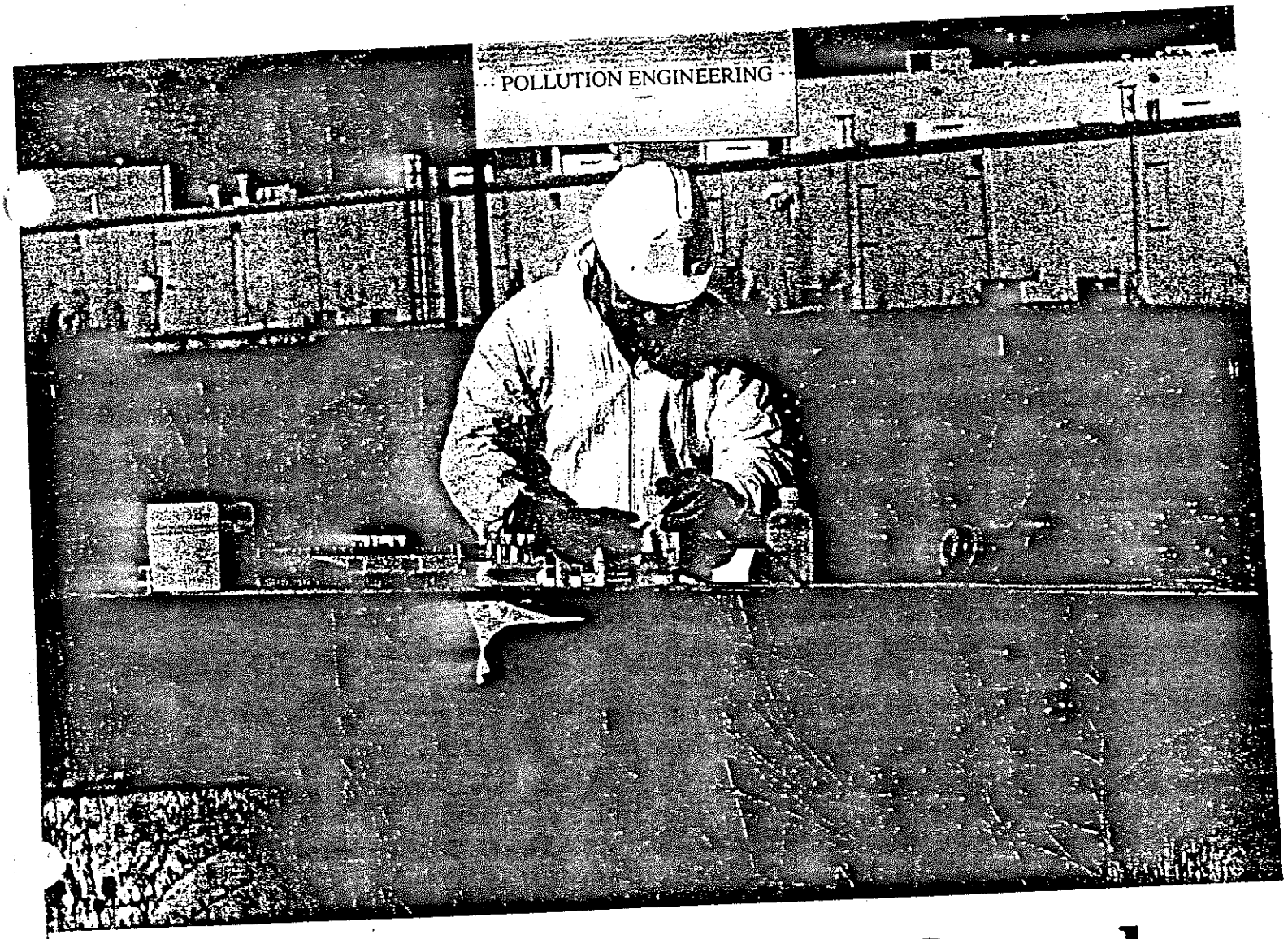
APPLICATIONS

WOOD PRESERVING INDUSTRY	Delineation of soil contamination at plant sites
	Monitoring the progress of soil remediation
	Guiding collection of samples for closure permitting

OPERATIONAL CHARACTERISTICS

Detection Levels	Multiple semi–quantitative levels.
Sample Testing Throughput	Five samples complete in less than 30 minutes
Quality Control	Duplicate standards are provided with each set of samples to ensure accuracy under field conditions
Temperature	Stored at room temperature, no refrigeration necessary.
Shelf Life	3 months (extended with additional real time data.

PO Box 14063, Research Triangle Park, NC 27709
Royal Center, 4222 Emperor Blvd., Morrisville, NC 27560
(919) 941-5509 (919) 941-5519 FAX



On-Site Screening Speeds Sample Analysis

Immunoassay offers quick and accurate screening of soil and water samples for organic compounds.

by Kevin R. Carter, Ph.D.

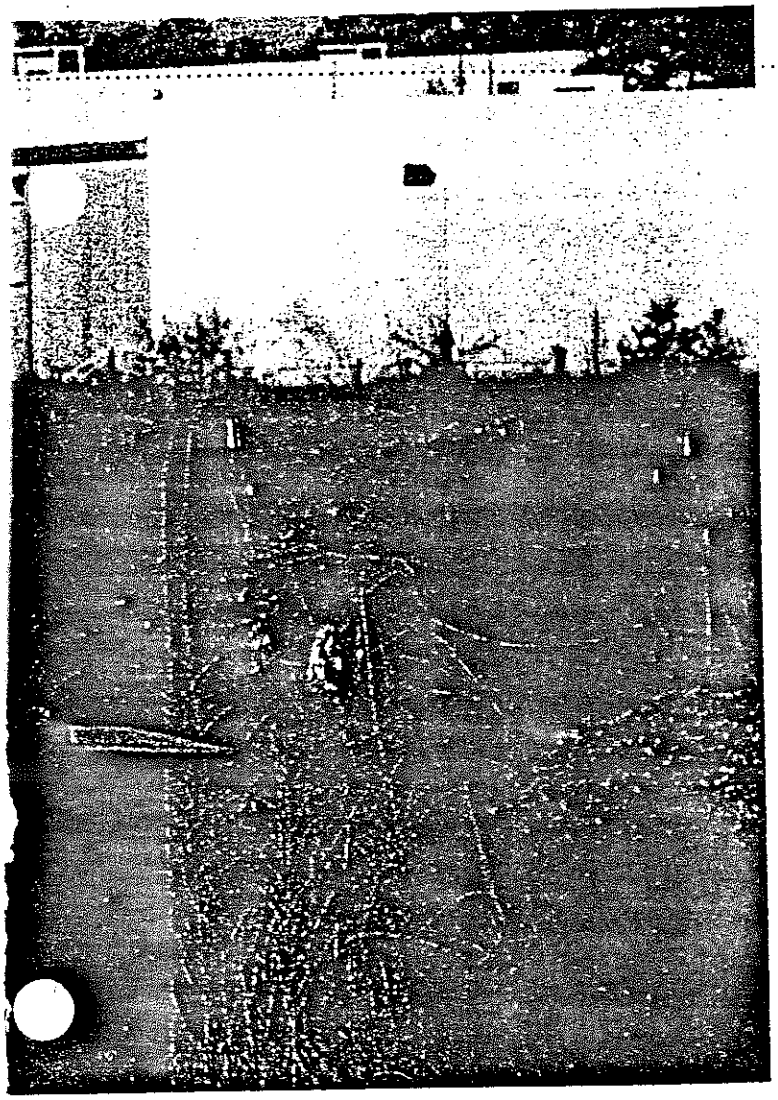
More than $1.5 billion a year is spent on analyzing soil and water samples in order to comply with U.S. Environmental Protection Agency (EPA) wastewater discharge and soil cleanup requirements. This represents more than 10 million samples per year.

Estimates from commercial laboratories and the in-house labs of major waste generating industries indicate at least 50 percent of samples tested are negative or below the threshold for the compound of interest. Is the current practice of costly and time consuming instrument-based laboratory analysis the best means of coping with the steadily increasing demand for analytical results to support regulatory compliance?

Immunoassay technology, which has long been approved by the Food and Drug Administration (FDA) as a standard method for disease detection and drug monitoring, has recently become available as an analytical method to rapidly and accurately screen soil and water samples for several potentially carcinogenic organic compounds.

On-site immunoassay tests for pentachlorophenol (PCP) in soil and water and for polychlorinated biphenyls (PCBs) in soil are currently available. Tests for petroleum hydrocarbons and polyaromatic hydrocarbons are currently under development.

Monitoring programs serve several basic purposes. They provide the waste generating company with a means of monitoring their waste generation, measuring the efficiency of waste removal from discharge streams and adjusting the waste removal process as



• Using a test kit, sample collection and preparation are done on-site. Samples can be analyzed immediately and the results acted on without delay.

necessary, and assuring that discharge permit levels are met. A well-designed monitoring program also provides local, state and federal authorities with the data needed to verify compliance with permits on a routine basis.

The analytical chemistry profession has done such a good job providing sensitive, specific analytical tools and the need for environmental monitoring has increased so rapidly that a crisis, of sorts, has been created.

The laboratory analysis of environmental samples requires three things that are in relatively short supply: technically qualified individuals, capital and time. As a consequence, laboratory analytical results are expensive and normal sample turnaround times are usually two to six weeks. These two factors are responsible for the rapidly increasing application of field screening tests.

On-site testing has several benefits to the waste generator or cleanup contractor. Because samples can be analyzed immediately, the user has rapid access to the data and can act on the results directly, without delay.

In a waste discharge situation, such information could mean the difference between operating within permit levels and out of compliance for as long as six weeks. In a soil remediation project, the use of a field test might enable all the data necessary for site concentration mapping to be obtained in one field sampling trip instead of several. On-site testing also:

- Provides the data necessary to react to contamination that presents an immediate health risk.
- Facilitates the selection of appropriate samples for laboratory analysis.
- Reduces the overall time and cost of analytical work.
- Increases the efficiency of use of the personnel and equipment committed to pollution control.

The same features that motivated widespread adoption of immunoassay technology by the medical community apply to the environmental arena. They include:

- Immunoassay-based tests are extremely specific.
- The tests can detect the major organic compounds of environmental relevance.
- The tests are accurate and precise.
- They are easy to use.
- The immunoassay reaction is rapid, less than 20 minutes.
- The immunoassay reaction is not significantly affected by the composition of the sample, soil or water, or the presence of other compounds.

The technique relies on a molecule referred to as an antibody developed with a high degree of affinity for the target analyte. The high specificity and high affinity of the antibody is coupled with a very sensitive colorimetric reaction that provides the visualization of the result. All of this chemistry is accomplished with a small number of solutions applied to the processed sample or a dilution thereof by means of dropper bottles.

These tests are so simple and so robust they can be performed on the tailgate of a pick-up truck, if necessary. Either soil or water samples can be analyzed using immunoassays. Soil samples require a simple extraction step and subsequent filtration of the extractant, whereas water samples need only pH

A minimally skilled person can be trained to use immunoassay technology in a few hours.

normalization and filtration. A wide range of analyte concentrations in samples is accommodated through conventional serial dilutions. Extraction, normalization and sample dilutions can be preformatted for ease of use in the field.

A minimally skilled individual can be trained in the use of immunoassay technology in a few hours. The use of these tests requires good manual dexterity and the ability to follow written instructions closely.

Case studies

A consulting engineering firm was engaged in an initial site characterization at a former wood preserving plant. The plant had recently ceased operations after 40 years. Several areas on the 50-acre plant grounds were contaminated with PCP, creosote and chromated copper arsenate (CCA).

Because significant levels of dioxin had been detected in association with PCP at this site, the initial characterization was focused on PCP contamination. The on-site screening test performed several functions at this site. At this particular site, it was used to establish a map of the site with respect to PCP contamination. At the outset of the investigation the extent of PCP contamination over the property was unknown.

The rapid testing capability allowed the sampling team to establish the boundaries of PCP contamination in one on-site visit. This provided the project manager with the full contamination profile before he pulled the sampling team out of the field. Using conventional analytical services it would have taken several weeks to get the results, and the sampling team may have had to return to the site to get a more complete picture of PCP contamination had the first round of sampling not been adequate. In addition, the cost of the immunoassay test was less than one-half that of the laboratory analysis.

• Immunoassay tests provide immediate results, whereas conventional analytical services may take several weeks.

Although field screening reduces expense and time to obtain analytical results, many analysis results will still be confirmed using conventional methods to satisfy regulatory requirements or provide QA/QC backup. The use of the screening test on these same samples increased analysis throughput by predetermining the analyte concentration to aid in efficient sample preparation prior to gas chromatography (GC) or gas chromatography/mass spectrometry (GC/MS) analysis.

The use of the field screening immunoassay at this site required a modification from the normal sampling plan. To derive maximum benefit from the screening procedure, the results were plotted on a site map at the end of every day, and the next morning the sampling plan was modified accordingly. For example, where a hot spot was identified, additional samples were taken at greater soil depth to define the extent of soil penetration. In addition, when sample grid cells were found to contain high concentrations of PCP, more samples were taken to further define these areas. In locations where one sample out of several showed an extraordinarily high concentration, the sample was sent to the lab for confirmation.

By sending these and a selection of representative positive and negative samples to the lab for confirmatory analysis, good quality control was maintained, but the cost and time associated with the laboratory analysis of all of the samples was avoided. This procedure allowed areas of high PCP concentration to be more fully delineated and apparent sampling anomalies to be resolved during the initial sampling trip.

On another wood treating site where two PCP spills had occurred over the years, the groundwater was contaminated. The contractor was charged with the task of determining the extent of lateral movement of contaminated groundwater as one of the prerequisites to determining the best treatment approach. Because of the remote location of the site and the consequent cost of bringing in a well drilling rig, the project geologist decided to use the on-site immunoassay to screen groundwater samples for PCP as they were obtained.

This information was subsequently used to direct the movement of the rig on the property so the edge of the contaminant plume was defined in one two-day drilling session. As it turned out, the PCP contamination had moved farther from the spill site than was initially expected. Had the field test not been used, several trips to the site for drilling and sampling would have been necessary, all at additional expense to the client.

Kevin Carter, Ph.D., is a vice president at EnSys Inc., Triangle Park, N.C.

APPENDIX D

ANALYTICAL LABORATORY
IEPA CONTRACT LAB PROGRAM
PARTICIPATION

Environmental
Science &
Engineering, Inc.

8901 North Industrial Road
Peoria, Illinois 61615-1589

Phone (309) 692-4422
Lab Fax (309) 692-5232

An IEPA Contract Laboratory

March 25, 1993

Ms. Dixie Shear
USPCI
5665 Flatiron Parkway
Boulder, CO 80301

Dear Ms. Shear:

Per Theresa Van's request, Environmental Science & Engineering, Inc (ESE) currently holds two contracts with Illinois Environmental Protection Agency (IEPA). Our Professional Services Agreement Numbers for the State Funded and Federally Funded programs are HW-2016 and FLU-2018, respectively.

If you have any questions, or would like additional information, please contact me at (800)234-1239.

Sincerely,

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.

Jim McQuellon
Project Manager

ARDL inc. applied research & development laboratory

CHEMISTRY • BIOLOGY • PHYSIOLOGY
ENGINEERING • ENVIRONMENTAL ANALYSIS

25 March 1993

Ms. Dixie Schear
USPCI
5665 Flat Iron Parkway
Boulder, CO 80301

Dear Ms. Schear :

Enclosed for your review is ARDL's brochure listing areas of expertise. Also enclosed is our Capability Statement. In addition, a brief overview of our Company is given below.

ARDL, Inc. (Applied Research and Development Laboratory) was established in 1971 and has been successful by reputation, retaining over 95 percent of its clients through dedicated service which includes close attention to quality control and the use of only wholly acceptable methods, procedures and instrumentation.

ARDL is an Illinois Environment Protection Agency (IEPA) Contract Laboratory and a Certified Drinking Water Laboratory. ARDL also holds certification as a CERCLA Contract Laboratory, a Corps of Engineers Contract Laboratory and an IDEM (Indiana Department of Environmental Management) Contract Laboratory. We have participated in the NIOSH Proficiency Analytical Testing (PAT) Program. We are the first and only laboratory in Southern Illinois to qualify as a contract laboratory in support of the Illinois EPA. The strict qualification associated with this program demonstrates our desire and ability to provide professional services and accurate results to our customers. The laboratory and its staff of 90 scientists and technicians are affiliated with a number of professional organizations. Our analytical services are supported by complete instrumental and wet chemical laboratories, including seven (7) Gas Chromatograph/Mass Spectrometers, ten (10) Gas Chromatographs, three (3) Atomic Absorption Spectrophotometers, three (3) Inductively Coupled Argon Plasma Spectrometers, one (1) autoanalyzer and one (1) TOC and TOX analyzer.

Sample collection and analysis is performed in strict accordance with accepted and/or approved standard methods. ARDL will establish chain-of-custody as required and every effort will be made to provide analytical results in ten (10) working days or less.

P.O. Box 1566 • Mt. Vernon Airport, Route 15 East • Mt. Vernon, Illinois 62864 • (618) 244-3235 • FAX (618) 244-1149

In addition to our overall analytical capability, ARDL is currently providing several specific services to its customers. Some typical examples are listed below.

1. Underground Storage Tank (UST) consultation including site assessment, soil analysis and tank removal.

2. Sampling and analysis of incinerator, drying ovens and other stack assemblies as required for EPA permit application.

3. Assistance to industry for compliance with the Workers "Right-To-Know" Law including implementing company programs, training employees, maintaining updated Material Safety Data Sheets and regular consultation.

4. Sample analysis, materials balance studies, air monitoring and literature review as required by customers for the support of PSD (Prevention of Significant Deterioration) and other permit applications submitted to the EPA.

5. Long-term monitoring of industrial and municipal waste treatment plant influent and effluent streams to characterize flow, composition and other parameters as required for plant redesign or to establish EPA compliance.

6. Personnel and area monitoring of workroom air at various industrial sites to determine the concentrations of benzene, carbon black, lead, asbestos, fiberglass and other potentially hazardous materials.

In reference to quality assurance, ARDL adheres to the strict Illinois EPA QC procedures approved and documented in our Quality Assurance Program Plan (QAPP). Our QAPP addresses the following information:

1. Chart of organization and individual responsibilities.

2. QA objectives in terms of precision, accuracy, completeness, representativeness and comparability.

3. Sampling procedures including containers with caps, holding times, preservatives, bottle preparation, etc.

4. Chain-of-Custody.

5. Calibration procedures and frequency.

6. Analytical procedures.

7. Data Reduction, validation and reporting.

8. Internal quality control checks.

9. Performance and system audits.

10. Preventive maintenance.

11. Specific routine procedures.

12. Corrective action.

13. Quality assurance reports to management.

I have included our brochure and our capability statement for your review. If you have any questions concerning any of this information, please contact me at (618) 244-3235 or (800) 842-7134.

Thank you.

Sincerely yours,

Edward D. Prout
Marketing Manager

EDP/tsf

Enclosures

PROFESSIONAL CERTIFICATIONS AND AFFILIATIONS

LABORATORY

American Association of Bioanalyst Proficiency Drug Testing Service Controlled Substances Certification, U.S. Department of Justice

Drug Enforcement Administration: Analytical Laboratory Number PA0091758 Research Number PA0089169

Corps of Engineers Missouri River Division (CEMRD) Validation

Illinois Department of Nuclear Safety, Registration Number 9201468

Illinois Division Land Pollution Control Lab #0006

NIOSH Proficiency Analytical Testing (PAT) Proficiency # 62864-001

Oklahoma Water Resources Board, Lab Number 8930

State of Illinois Environmental Protection Agency Drinking Water Certification #100218

State of Illinois Environmental Protection Agency Contract Laboratory

State of Illinois Capital Development Board, Certificate of Professional Prequalification

State of Illinois Department of Alcoholism and Substance Abuse - Authorization Number: R-044

State of Indiana Department of Environmental Management Contract Laboratory

USEPA Water Study (WS) Program

USEPA CLP Quarterly Blind (QB) Program

EMPLOYEE CERTIFICATIONS

Asbestos Counter - NIOSH

Certified Hazardous Materials Manager - Institute of Hazardous Materials Management

Engineer-In-Training - State of Illinois

Engineer-In-Training - State of Missouri

Medical Technologist - American Society of Clinical Pathologists

OSHA General Site Worker (40 hour) - Hazardous Waste Operations and Emergency Response

OSHA Supervisor (8 hour) - Hazardous Waste Operations and Emergency Response

Presidential Research Fellow, 1979

ARDL appreciates the customer's need for rapid turn-around service and confidentiality. Every effort is made to provide analytical results within five to ten working days. All results are reported in writing and when necessary, results are telephoned or "Faxed" to the customer prior to the submission of a formal report. ARDL maintains a reference file of all analyses and holds that file confidential, releasing information only at the direction of the customer.

A partial list of major customers for whom ARDL has furnished analytical and technical consulting services is given in Appendix A.

2.1.1 Contract Laboratory Services

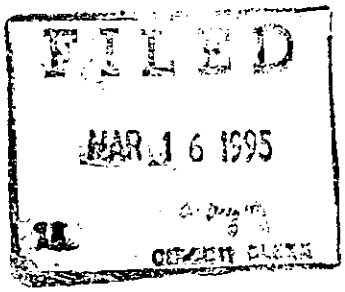
ARDL is currently under contract with several State and Federal Agencies to provide analytical services in support of site investigation and clean-up activities. ARDL was awarded these contracts based upon its ability to meet Agency's stringent evaluation criteria which included, but were not limited to: technical qualifications, personnel qualifications, firm reputation, availability of facilities, price of services and ARDL's overall capability to perform the services required under each program plan. A summary of ARDL's contract customer since 1986 is given below:

CUSTOMER	CURRENT CONTRACT NO.	TERM
Illinois EPA SRAPL	FLU-2017	1986 - present
Illinois EPA CERCLA	HW-2019	1988 - present
Corps of Engineers-Rock Island, IL	DACW25-87-D-0061	1987 - present
Corps of Engineers-Portland, OR	DACW57-91-D-0009	1988 - present
Indiana DEM	91608080	1988 - 1992
Corps of Engineers - Dallas, TX	DACW63-91-D-0031	1991 - present
Corps of Engineers - Buffalo, NY	DACW49-92-D-0008	1991 - present
USEPA CLP-SMO	68-D9-0135	1991 - present
Corps of Engineers-St. Louis, MO	DACW43-92-D-0512	1992 - present
CDM Federal Programs Corp	DE-AC06-76RL01830	1992 - present
Rocky Mountain Arsenal	DAAA05-92-D-0008	1992 - present

IN THE CIRCUIT COURT OF THE TWENTIETH JUDICIAL DISTRICT
ST. CLAIR COUNTY, ILLINOIS

(4)

PEOPLE OF THE STATE OF ILLINOIS,)
)
Plaintiff,)
)
vs.) No. 95 CH 34
)
MISSOURI PACIFIC RAILROAD COMPANY,)
)
Defendant.)



CONSENT ORDER

This action was commenced on behalf of the People of the State of Illinois by James E. Ryan Attorney General of the State of Illinois, on his own motion and at the request of the Illinois Environmental Protection Agency. The plaintiff and the defendant, Missouri Pacific Railroad Company ("Missouri Pacific"), have agreed to the making of this consent order. These stipulated facts shall be the findings of fact by this court and the conclusions of law herein shall be the conclusions of law by this court.

I.

STIPULATION OF USE AND AUTHORIZATION

The parties stipulate that this consent order is entered into for the purposes of settlement only, and that neither the fact that a party has entered into this consent order nor any of the facts stipulated herein shall be used for any purpose in this or any other proceeding except to enforce the terms hereof by the parties to this agreement and as evidence of previously adjudicated violations for purposes of subsection 42(h) of the Illinois Environmental Protection Act ("the Act") (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1042(h); 415 ILCS 5/42(h) (West 1992)). The undersigned representative for each party certifies that

1630355007 - St. Clair
Union Pacific Railroad
RLD 9847749051

he is fully authorized by the party whom he represents to enter into the terms and conditions of this consent order and to bind legally the party he represents to the consent order.

II.

STATEMENT OF FACTS

1. This action was brought pursuant to the statutory authority of the Attorney General to institute civil actions to enjoin and obtain civil penalties for violations of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1001 et seq.; 415 ILCS 5/1 et seq. (West 1992)) upon his own motion and at the request of the Illinois Environmental Protection Agency ("the Agency").

2. The Agency is an agency of the State of Illinois created by the Illinois General Assembly in section 4 of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1004; 415 ILCS 5/4 (West 1992)), which is charged, inter alia, with the duty of enforcing the Act.

3. The defendant, Missouri Pacific, is a Delaware corporation qualified to do business in Illinois.

4. Missouri Pacific operates a railyard located at Highway 3 and Carondelet, Dupo, St. Clair County, Illinois ("the Dupo railyard").

5. On March 2, 1990, the Agency was informed that a spill of pentachlorophenol ("PCP") had occurred at a railyard in Mitchell, Illinois ("the Mitchell railyard"). Missouri Pacific operates the Mitchell railyard.

6. Based upon the Agency's information and belief, six drums were discovered at the Mitchell railyard, all of which had bulletholes in the drums.

7. Based upon the Agency's information and belief, four of the drums were empty, and approximately fifty-five gallons of liquid remained in the other two drums.

8. Based upon the Agency's information and belief, one of the drums discovered at the Mitchell railyard was marked, "PENTACHLOROPHENOL RQ, NA 1993, COMBUSTIBLE LIQUID N.O.S." PCP is a listed hazardous waste with hazardous waste number F027 as set forth in 35 Ill. Adm. Code 721.131(a).

9. Based upon the Agency's information and belief, Missouri Pacific initiated an emergency cleanup at the Mitchell railyard, overpacking the two drums containing PCP liquid and placing PCP-contaminated soil into two additional overpack drums.

10. Based upon the Agency's information and belief, on or about March 2, 1990, Missouri Pacific labeled all the drums and transported them to the Dupo railyard for storage.

11. Based upon the Agency's information and belief, on or about April 23, 1990, an additional twenty-four drums of PCP-contaminated soil were excavated from the Mitchell railyard, removed, and transported to the Dupo railyard for storage.

12. Based upon the Agency's information and belief, on or about July, 1990, an additional fifty-three drums of PCP-contaminated soil were excavated from the Mitchell railyard and transferred to the Dupo railyard.

13. Based upon the Agency's information and belief, on or about February or March, 1991, an additional twelve drums of PCP-contaminated soil and nine drums of rainwater were collected from the Mitchell railyard and transported to the Dupo railyard for storage.

14. At no time has the Agency issued a permit to Missouri Pacific addressing or allowing the storage of hazardous waste at the Dupo railyard.

15. On June 23, 1992, an Agency inspector conducted an inspection of the Dupo railyard.

16. The Agency inspector observed one hundred thirteen drums of PCP and PCP-contaminated soil being stored at the Dupo railyard.

17. By failing to obtain a RCRA permit addressing storage of hazardous waste at the Dupo railyard, Missouri Pacific has violated subsection 21(f)(1) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1021(f)(1); 415 ILCS 5/21(f)(1) (West 1992)).

18. During the June 23, 1992, inspection, the Agency inspector observed that a temporary fence was constructed around the drum storage area, where such fence was easily stepped over.

19. The Agency inspector did not observe any other security measures which would prevent unauthorized entry into the drum storage area.

20. The Agency inspector also did not observe any surveillance system or warning signs in or near the drum storage area.

21. Based upon the Agency's information and belief, Missouri Pacific did not conduct inspections of the drum storage area to check for malfunctions, deterioration, operator errors, or discharges which may lead to a release or threat to human health.

22. Based upon the Agency's information and belief, Missouri Pacific did not require personnel at the Dupo railyard to undergo training regarding hazardous waste management procedures.

23. By failing to have adequate security to prevent unauthorized entry into the drum storage area, Missouri Pacific has violated subsection 21(f)(2) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1021(f)(2); 415 ILCS 5/21(f)(2) (West 1992)), 35 Ill. Adm. Code 725.114(a) and 725.114(b) (1992).

24. By failing to post warning signs in or near the drum storage area, Missouri Pacific has violated subsection 21(f)(2) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1021(f)(2); 415 ILCS 5/21(f)(2) (West 1992)) and 35 Ill. Adm. Code 725.114(c) (1992).

25. By failing to perform inspections at the Dupo railyard for malfunctions, deterioration, operator errors, or discharges, Missouri Pacific has violated subsection 21(f)(2) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1021(f)(2); 415 ILCS 5/21(f)(2) (West 1992)) and 35 Ill. Adm. Code 725.115(a) (1992).

26. By failing to require facility personnel to successfully complete an appropriate training program, Missouri Pacific has violated subsection 21(f)(2) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1021(f)(2); 415 ILCS 5/21(f)(2) (West 1992)) and 35 Ill. Adm. Code 725.116(a) (1992).

27. Based upon the Agency's information and belief, Missouri Pacific did not have a contingency plan for the Dupo railyard.

28. Based upon the Agency's information and belief, Missouri Pacific did not have at least one employee designated as an emergency coordinator for the Dupo railyard.

29. By failing to have a contingency plan for the Dupo railyard, Missouri Pacific has violated subsection 21(f)(2) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1021(f)(2); 415 ILCS 5/21(f)(2) (West 1992)) and 35 Ill. Adm. Code 725.151(a) (1992).

30. By failing to have at least one employee designated as emergency coordinator, Missouri Pacific has violated subsection 21(f)(2) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1021(f)(2); 415 ILCS 5/21(f)(2) (West 1992)) and 35 Ill. Adm. Code 725.155 (1992).

31. On March 1, 1993, Missouri Pacific submitted an annual report to the Agency addressing the previous calendar year's activities regarding the drum storage area at the Dupo railyard.

32. On April 9, 1993, Missouri Pacific submitted a written closure report to the Agency addressing the proposed closure of the drum storage area at the Dupo railyard.

33. On June 10, 1993, the Agency approved Missouri Pacific's written closure plan.

34. On October 21, 1993, the Agency approved modifications to Missouri Pacific's written closure plan.

35. By failing to submit an annual report for the calendar years of 1990 and 1991, Missouri Pacific has violated subsection 21(f)(2) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1021(f)(2); 415 ILCS 5/21(f)(2) (West 1992)) and 35 Ill. Adm. Code 725.175 (1992).

36. By failing to have a written closure plan from the drum storage area's creation until April 9, 1993, and an approved plan until June 10, 1993, Missouri Pacific has violated subsection 21(f)(2) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1021(f)(2); 415 ILCS 5/21(f)(2) (West 1992)) and 35 Ill. Adm. Code 725.212 (1992).

37. During the inspection, the Agency inspector observed that the drums were showing signs of deterioration, and that one of the drums containing PCP-contaminated soil was open.

38. Based upon the Agency's information and belief, Missouri Pacific did not conduct weekly inspections of the drum storage area of the Dupo railyard.

39. By failing to transfer waste from drums in poor condition to drums in good condition, Missouri Pacific has violated subsection 21(f)(2) of the Act (Ill. Rev. Stat. 1991,

ch. 111 1/2, par. 1021(f)(2); 415 ILCS 5/21(f)(2) (West 1992)) and 35 Ill. Adm. Code 725.271 (1992).

40. By failing to close all the drums holding hazardous waste in the drum storage area, Missouri Pacific has violated subsection 21(f)(2) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1021(f)(2); 415 ILCS 5/21(f)(2) (West 1992)) and 35 Ill. Adm. Code 725.273(a) (1992).

41. By failing to conduct inspections in the drum storage area, Missouri Pacific has violated subsection 21(f)(2) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1021(f)(2); 415 ILCS 5/21(f)(2) (West 1992)) and 35 Ill. Adm. Code 725.274 (1992).

III.

APPLICABILITY

This consent order shall apply to, and be binding upon, the plaintiff, the Agency, the defendant, and the defendant's successors and assigns, and all officers, agents and employees thereof. The defendant shall not raise, as a defense to any action to enforce this consent order, the failure of any of its agents or employees to take such action as shall be required to comply with the provisions of this consent order.

IV.

COVERED MATTERS

This consent order covers all claims asserted in the plaintiff's complaint concerning violations of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1001 et seq.; 415 ILCS 5/1 et seq. (West 1992)) and the regulations promulgated thereunder.

Covered matters do not include:

i) Criminal liability;

ii) Claims based on defendant's failure to meet the requirements of this consent order;

iii) Liability for future violation of state, local, federal, and common laws and/or regulations;

iv) Any future liability for natural resource damage or for removal, cleanup, or remedial action as a result of a release of hazardous substances or the liability of defendant under subsection 22.2(f) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1022.2(f); 415 ILCS 5/22.2(f) (West 1992)), or under the Comprehensive Environmental Response, Compensation and Liability Act (42 U.S.C. Sections 9401-9675);

v) Liability based on the Agency's 4(q) notice dated January 8, 1986, including the requirement to perform a remedial investigation/feasibility study. Also, liability based on failure to perform all remediation required by the Agency at the site; and

vi) Liability based on the State's complaint no. 92-CH-145 in the Twentieth Judicial Circuit, St. Clair County, arising from alleged water pollution violations.

V.

COMPLIANCE WITH OTHER LAWS AND REGULATIONS

This consent order in no way affects the responsibility of Missouri Pacific to comply with any other federal, state, or local statutes or regulations, including, but not limited to, the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1001 et seq.; 415 ILCS 5/1 et seq. (West 1992)) and the Board's rules and regulations, 35 Ill. Adm. Code Subtitles A through H.

VI.

VENUE

The parties agree that the venue of any action commenced in circuit court for the purposes of interpretation, implementation and enforcement of the terms and conditions of this consent order shall be in St. Clair County.

VII.

SEVERABILITY

It is the intent of the parties hereto that the provisions of this consent order shall be severable and should any provisions be declared by a court of competent jurisdiction to be unenforceable, the remaining clauses shall remain in full force and effect.

VIII.

FINAL JUDGMENT ORDER

This court having jurisdiction over the parties and subject matter, the parties having waived appearance, the court having considered the plaintiff's complaint and being advised of the premises, the court finds the following relief appropriate:

IT IS HEREBY ORDERED AND ADJUDGED:

A. PENALTY PAYMENT

1. Missouri Pacific shall make a payment of fifteen thousand four hundred dollars ($15,400.00) to the Hazardous Waste Fund, within sixty (60) days of the date of entry of this consent order. This amount shall be paid by certified check or money order, payable to the Treasurer of the State of Illinois, for deposit in the Hazaardous Waste Fund, and delivered to:

Illinois Environmental Protection Agency
Fiscal Services Section
2200 Churchill Road, P.O. Box 19276
Springfield, Illinois 62794-9276

A copy of the payment transmittal and check shall be simultaneously submitted to:

Environmental Control Division
Illinois Attorney General's Office
500 South Second St.
Springfield, Illinois 62706

The name and court number of this case and the Federal Employer Identification Number ("FEIN") of the defendant shall appear on the certified check or money order. For purposes of payment and collection, the defendant may be reached at the following address:

Missouri Pacific Railroad Company
c/o Union Pacific Railroad Company
210 North 13th Street
Room 2000
St. Louis, MO 63103-2388

The FEIN for the defendant is: MP: 43-1118635

2. In the event the penalty is not paid in a timely fashion, interest shall accrue and be paid by the defendant at the rate set forth in subsection 1003(a) of the Illinois Income Tax Act, pursuant to subsection 42(g) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1042(g); 415 ILCS 5/42(g) (West 1992)).

B. COMPLIANCE

1. The defendant shall diligently comply with, and shall cease and desist from any future violation of, the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1001 et seq.; 415 ILCS 5/1 et seq. (West 1992)), the Board's rules and regulations, 35 Ill. Adm. Code Subtitles A through H, and any and all federal and state laws and regulations except as may be specifically provided in this consent order.

2. The defendant shall comply with the terms and requirements of the approved written closure plans, as well as any approved modifications thereto.

3. The defendant shall remove and properly dispose of all waste from the present drum storage facility within 180 days of the entry of this consent order.

4. The defendant shall complete closure of the present drum storage facility in accordance with the Agency's closure approval letter dated June 10, 1993 and as modified by the Agency's closure modification letter dated October 21, 1993 within 240 days of the entry of this consent order.

5. The defendant shall submit to the Agency a closure documentation report including a closure certification within 270 days of the entry of this consent order.

C. ADMISSION OF NONCOMPLIANCE

The defendant admits to the violations as alleged in the plaintiff's complaint.

D. JURISDICTION

This court shall retain jurisdiction of this matter for the purpose of amending, interpreting, implementing, and enforcing the terms and conditions of this consent order, and for the purpose of adjudicating all matters of dispute among the parties.

WHEREFORE, the parties, by their representative, enter into this consent order and submit it to the court that it may be approved and entered.

Respectfully submitted,

PEOPLE OF THE STATE OF ILLINOIS

ROLAND W. BURRIS
ATTORNEY GENERAL

DATED: ____________ BY: ____________
Shawn W. Denney
First Assistant Attorney General

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

DATED: 8/15/94 BY: [signature]
Joseph E. Svoboda
General Counsel
Division of Legal Counsel

MISSOURI PACIFIC RAILROAD COMPANY

DATED: 1-16-95 BY: James V. Dolan

FEIN MP: 43-1118635

ENTERED: 3-16-95 [signature]
JUDGE
RICHARD AGUILERA

mopacon/jjk

cc: T Davis
R. Farrell

cm
3.16.95
ep

This consent order between the People of the State of Illinois and Missouri Pacific Railroad Company was negotiated on behalf of Attorney General Roland W. Burris. This consent order is hereby ratified and submitted to the court for entry.

Respectfully submitted,

PEOPLE OF THE STATE OF ILLINOIS

JAMES E. RYAN
ATTORNEY GENERAL

MATTHEW J. DUNN, Acting Chief
Environmental Enforcement Division

BY: _____
THOMAS DAVIS, Acting Chief
Environmental Bureau
Assistant Attorney General

500 South Second Street
Springfield, Illinois 62706
217/782-9031
Dated: 2/08/95

CERTIFICATE OF SERVICE

I hereby certify that I did on the 8th day of February, 1995, send by First Class Mail, with postage thereon fully prepaid, by depositing in a United States Post Office Box a true and correct copy of the following instruments entitled COMPLAINT and CONSENT ORDER

To: Mr. Roy P. Farwell
Union Pacific Railroad Company
Law Department
210 North 13th Street, Room 2000
St. Louis, MO 63103-2388

THOMAS DAVIS
Assistant Attorney General
Environmental Bureau/Springfield

Jane

IN THE CIRCUIT COURT OF THE TWENTIETH JUDICIAL DISTRICT
ST. CLAIR COUNTY, ILLINOIS

PEOPLE OF THE STATE OF ILLINOIS,

Plaintiff,

vs.

MISSOURI PACIFIC RAILROAD COMPANY,

Defendant.

ID 984 774 851

No. 95CH34

FILED
FEB 9 - 1995

COMPLAINT

NOW COMES the plaintiff, People of the State of Illinois, by James E. [illegible] Attorney General of the State of Illinois, and, complaining of the defendant, Missouri Pacific Railroad Company ("Missouri Pacific"), states as follows:

COUNT I

1. This complaint is brought pursuant to the statutory authority of the Attorney General to institute civil actions to enjoin and obtain civil penalties for violations of the Illinois Environmental Protection Act ("the Act") (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1001 et seq.; 415 ILCS 5/1 et seq. (West 1992)) upon his own motion and at the request of the Illinois Environmental Protection Agency ("the Agency").

2. The Agency is an agency of the State of Illinois created by the Illinois General Assembly in section 4 of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1004; 415 ILCS 5/4 (West 1992)), which is charged, inter alia, with the duty of enforcing the Act.

3. The defendant, Missouri Pacific, is a Delaware corporation qualified to do business in Illinois.

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Union Pacific Railroad
BID 984774851
Compliance File

4. Missouri Pacific's operates a railyard located at Highway 3 and Carondelet, Dupo, St. Clair County, Illinois ("the Dupo railyard").

5. On March 2, 1990, the Agency was informed that a spill of pentachlorophenol ("PCP") had occurred at a railyard in Mitchell, Illinois ("the Mitchell railyard"). Missouri Pacific operates the Mitchell railyard.

6. Based upon the Agency's information and belief, six drums were discovered at the Mitchell railyard, all of which had bulletholes in the drums.

7. Based upon the Agency's information and belief, four of the drums were empty, and approximately fifty-five gallons of liquid remained in the other two drums.

8. Based upon the Agency's information and belief, one of the drums discovered at the Mitchell railyard was marked, "PENTACHLOROPHENOL RQ, NA 1993, COMBUSTIBLE LIQUID N.O.S." PCP is a listed hazardous waste with hazardous waste number F027 as set forth in 35 Ill. Adm. Code 721.131(a).

9. Based upon the Agency's information and belief, Missouri Pacific initiated an emergency cleanup at the Mitchell railyard, overpacking the two drums containing PCP liquid and placing PCP-contaminated soil into two additional overpack drums.

10. Based upon the Agency's information and belief, on or about March 2, 1990, Missouri Pacific labeled all the drums and transported them to the Dupo railyard for storage.

11. Based upon the Agency's information and belief, on or about April 23, 1990, an additional twenty-four drums of PCP-contaminated soil were excavated from the Mitchell railyard, removed, and transported to the Dupo railyard for storage.

12. Based upon the Agency's information and belief, on or about July, 1990, an additional fifty-three drums of PCP-contaminated soil were excavated from the Mitchell railyard and transferred to the Dupo railyard.

13. Based upon the Agency's information and belief, on or about February or March, 1991, an additional twelve drums of PCP-contaminated soil and nine drums of rainwater were collected from the Mitchell railyard and transported to the Dupo railyard for storage.

14. At no time has the Agency issued a permit to Missouri Pacific addressing or allowing the storage of hazardous waste at the Dupo railyard.

15. On June 23, 1992, an Agency inspector conducted an inspection of the Dupo railyard.

16. The Agency inspector observed one hundred thirteen drums of PCP and PCP-contaminated soil being stored at the Dupo railyard.

17. Section 21 of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1021; 415 ILCS 5/21 (West 1992)) provides in part:

"No person shall:

* * *

f. Conduct any hazardous waste-storage, hazardous waste-treatment or hazardous waste-disposal operation:

1. Without a RCRA [Resource, Conservation and Recovery Act] permit for the site issued by the Agency under subsection (d) of Section 39 of this Act, or in violation of any condition imposed by such permit, including periodic reports and full access to adequate records and the inspection of facilities, as may be

necessary to assure compliance with this Act and with regulations and standards adopted thereunder;

* * *"

18. By failing to obtain a RCRA permit addressing storage of hazardous waste at the Dupo railyard, Missouri Pacific has violated subsection 21(f)(1) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1021(f)(1); 415 ILCS 5/21(f)(1) (West 1992)) and 35 Ill. Adm. Code 703.121(a) (1992). These violations may recur unless enjoined by this court.

WHEREFORE, plaintiff, People of the State of Illinois, prays that this court grant the following relief:

A. Enter a finding that the defendant, Missouri Pacific Railroad Company, has violated subsection 21(f)(1) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1021(f)(1); 415 ILCS 5/21(f)(1) (West 1992)) and 35 Ill. Adm. Code 703.121(a) (1992);

B. Enter and issue a permanent injunction enjoining the defendant from further violations of the Act and associated regulations;

C. For each of the violations alleged herein, impose upon the defendant the maximum statutory penalty pursuant to section 42 of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1042; 415 ILCS 5/42 (West 1992));

D. Award plaintiff its costs, including attorney's fees and expert witness fees, pursuant to subsection 42(f) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1042(f); 415 ILCS 5/42(f) (West 1992)); and

E. Enter and issue such additional and further relief as this court deems appropriate under the circumstances.

COUNT II

1-16. Plaintiff realleges and incorporates herein by reference paragraphs 1 through 16 of Count I as paragraphs 1 through 16 of this Count II.

17. During the June 23, 1992, inspection, the Agency inspector observed that a temporary fence was constructed around the drum storage area, where such fence was easily stepped over.

18. The Agency inspector did not observe any other security measures which would prevent unauthorized entry into the drum storage area.

19. The Agency inspector also did not observe any surveillance system or warning signs in or near the drum storage area.

20. Based upon the Agency's information and belief, Missouri Pacific did not conduct inspections of the drum storage area to check for malfunctions, deterioration, operator errors, or discharges which may lead to a release or threat to human health.

21. Based upon the Agency's information and belief, Missouri Pacific did not require personnel at the Dupo railyard to undergo training regarding hazardous waste management procedures.

22. Section 21 of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1021; 415 ILCS 5/21 (West 1992)) provides in part:

"No person shall:

* * *

f. Conduct any hazardous waste-storage, hazardous waste-treatment or hazardous waste-disposal operation:

* * *

2. In violation of any regulation or standards adopted by the [Illinois Pollution Control] Board under this Act;

* * *"

23. 35 Ill. Adm. Code 725.114 (1992) provides in part:

"a) The owner or operator must prevent the unknowing entry and minimize the possibility for the unauthorized entry of persons or livestock onto the active portion of his facility, unless:

1) Physical contact with the waste, structures or equipment of the active portion of the facility will not injure unknowing or unauthorized persons or livestock which may enter the active portion of a facility; and

2) Disturbance of the waste or equipment, by the unknowing or unauthorized entry of persons or livestock onto the active portion of a facility will not cause a violation of the requirements of this Part.

* * *

b) Unless exempt under paragraphs (a)(1) and (a)(2) of this Section, a facility must have:

1) A 24-hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel) which continuously monitors and controls entry into the active portion of the facility; or

2) A) An artificial or natural barrier (e.g., a fence in good repair or a fence combined with a cliff), which completely surrounds the active portion of the facility; and

B) A means to control entry at all times through the gates or other entrances to the active portion of the facility (e.g., an attendant, television monitors, locked entrance or controlled roadway access to the facility).

Comment: The requirements of paragraph (b) of this Section are satisfied if the facility or plant within which the active portion is located itself has a surveillance

system or a barrier and a means to control entry which complies with the requirements of paragraph (b)(1) and (b)(2) of this Section.

c) Unless exempt under paragraphs (a)(1) and (a)(2) of this Section, a sign with the legend, "Danger--Unauthorized Personnel Keep Out", must be posted at each entrance to the active portion of a facility and at other locations, in sufficient numbers to be seen from any approach to this active portion. The sign must be legible from a distance of at least 25 feet. Existing signs with a legend other than "Danger--Unauthorized Personnel Keep Out" may be used if the legend on the sign indicates that only authorized personnel are allowed to enter the active portion and that entry into the active portion can be dangerous."

24. 35 Ill. Adm. Code 725.115(a) (1992) provides:

"a) The owner or operator shall inspect the facility for malfunctions and deterioration, operator errors and discharges which may be causing--or may lead to--the conditions listed below. The owner or operator shall conduct these inspections often enough to identify problems in time to correct them before they harm human health or the environment.

1) Release of hazardous waste constituents to the environment; or

2) A threat to human health."

25. 35 Ill. Adm. Code 725.116 (1992) provides in part:

"a) 1) Facility personnel must successfully complete a program of classroom instruction or on-the-job training that teaches them to perform their duties in a way that ensures the facility's compliance with the requirements of this Part. The owner or operator must ensure that this program includes all the elements described in the document required under paragraph (d)(3) of this Section.

2) This program must be directed by a person trained in hazardous waste management procedures, and must include instruction which teaches facility personnel hazardous waste management procedures (including contingency plan implementation) relevant to the positions in which they are employed.

3) At a minimum, the training program must be designed to ensure that facility personnel are able to respond effectively to

> emergencies by familiarizing them with emergency procedures, emergency equipment emergency systems * * *.
>
> * * *"

26. By failing to have adequate security to prevent unauthorized entry into the drum storage area, Missouri Pacific has violated subsection 21(f)(2) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1021(f)(2); 415 ILCS 5/21(f)(2) (West 1992)), 35 Ill. Adm. Code 725.114(a) and 725.114(b) (1992). These violations may recur unless enjoined by this court.

27. By failing to post warning signs in or near the drum storage area, Missouri Pacific has violated subsection 21(f)(2) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1021(f)(2); 415 ILCS 5/21(f)(2) (West 1992)) and 35 Ill. Adm. Code 725.114(c) (1992). These violations may recur unless enjoined by this court.

28. By failing to perform inspections at the Dupo railyard for malfunctions, deterioration, operator errors, or discharges, Missouri Pacific has violated subsection 21(f)(2) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1021(f)(2); 415 ILCS 5/21(f)(2) (West 1992)) and 35 Ill. Adm. Code 725.115(a) (1992). These violations may recur unless enjoined by this court.

29. By failing to require facility personnel to successfully complete an appropriate training program, Missouri Pacific has violated subsection 21(f)(2) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1021(f)(2); 415 ILCS 5/21(f)(2) (West 1992)) and 35 Ill. Adm. Code 725.116(a) (1992). These violations may recur unless enjoined by this court.

WHEREFORE, plaintiff, People of the State of Illinois, prays that this court grant the following relief:

A. Enter a finding that the defendant, Missouri Pacific Railroad Company, has violated subsection 21(f)(2) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1021(f)(2); 415 ILCS 5/21(f)(2) (West 1992)), 35 Ill. Adm. Code 725.114(a),(b),(c), 725.115(a), and 715.116(a) (1992);

B. Enter and issue a permanent injunction enjoining the defendant from further violations of the Act and associated regulations;

C. For each of the violations alleged herein, impose upon the defendant the maximum statutory penalty pursuant to section 42 of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1042; 415 ILCS 5/42 (West 1992));

D. Award plaintiff its costs, including attorney's fees and expert witness fees, pursuant to subsection 42(f) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1042(f); 415 ILCS 5/42(f) (West 1992)); and

E. Enter and issue such additional and further relief as this court deems appropriate under the circumstances.

COUNT III

1-16. Plaintiff realleges and incorporates herein by reference paragraphs 1 through 16 of Count I as paragraphs 1 through 16 of this Count III.

17. Based upon the Agency's information and belief, Missouri Pacific did not have a contingency plan for the Dupo railyard.

18. Based upon the Agency's information and belief, Missouri Pacific did not have at least one employee designated as an emergency coordinator for the Dupo railyard.

19. 35 Ill. Adm. Code 725.151(a) (1992) provides:

"a) Each owner or operator must have a contingency plan for this facility. The contingency plan must be designed to minimize hazards to human health or the environment from fires, explosions or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil or surface water."

20. 35 Ill. Adm. Code 725.155 (1992) provides:

"At all times, there must be at least one employee either on the facility premises or on call (i.e., available to respond to an emergency by reaching the facility within a short period of time) with the responsibility for coordinating all emergency response measures. This emergency coordinator must be thoroughly familiar with all aspects of the facility's contingency plan, all operations and activities at the facility, the location and characteristics of waste handled, the location of all records within the facility and the facility layout. In addition, this person must have the authority to commit the resources needed to carry out the contingency plan."

21. By failing to have a contingency plan for the Dupo railyard, Missouri Pacific has violated subsection 21(f)(2) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1021(f)(2); 415 ILCS 5/21(f)(2) (West 1992)) and 35 Ill. Adm. Code 725.151(a) (1992). These violations may recur unless enjoined by this court.

22. By failing to have at least one employee designated as emergency coordinator, Missouri Pacific has violated subsection 21(f)(2) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1021(f)(2); 415 ILCS 5/21(f)(2) (West 1992)) and 35 Ill. Adm. Code 725.155 (1992). These violations may recur unless enjoined by this court.

WHEREFORE, plaintiff, People of the State of Illinois, prays that this court grant the following relief:

A. Enter a finding that the defendant, Missouri Pacific Railroad Company, has violated subsection 21(f)(2) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1021(f)(2); 415

ILCS 5/21(f)(2) (West 1992)), 35 Ill. Adm. Code 725.151(a) and 725.155 (1992);

B. Enter and issue a permanent injunction enjoining the defendant from further violations of the Act and associated regulations;

C. For each of the violations alleged herein, impose upon the defendant the maximum statutory penalty pursuant to section 42 of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1042; 415 ILCS 5/42 (West 1992));

D. Award plaintiff its costs, including attorney's fees and expert witness fees, pursuant to subsection 42(f) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1042(f); 415 ILCS 5/42(f) (West 1992)); and

E. Enter and issue such additional and further relief as this court deems appropriate under the circumstances.

COUNT IV

1-16. Plaintiff realleges and incorporates herein by reference paragraphs 1 through 16 of Count I as paragraphs 1 through 16 of this Count IV.

17. On March 1, 1993, Missouri Pacific submitted an annual report to the Agency addressing the previous calendar year's activities regarding the drum storage area at the Dupo railyard.

18. On April 9, 1993, Missouri Pacific submitted a written closure report to the Agency addressing the proposed closure of the drum storage area at the Dupo railyard.

19. On June 10, 1993, the Agency approved Missouri Pacific's written closure plan.

20. On October 21, 1993, the Agency approved modifications to Missouri Pacific's written closure plan.

21. 35 Ill. Adm. Code 725.175 (1992) provides in part:

> "The owner or operator shall prepare and submit a single copy of an annual report to the Agency by March 1 of each year. The report form and instructions supplied by the Agency must be used for this report. The annual report must cover facility activities during the previous calendar year * * *:
>
> * * *"

22. 35 Ill. Adm. Code 725.212(a) (1992) provides:

> "a) Written Plan. The owner or operator of a hazardous waste management facility shall have a written closure plan. Until final closure is completed and certified in accordance with Section 725.214, a copy of the most current plan must be furnished to the Agency upon request including request by mail. In addition, for facilities without approved plans, it must also be provided during site inspections on the day of inspection to any officer, employee or representative of the Agency."

23. By failing to submit an annual report for the calendar years of 1990 and 1991, Missouri Pacific has violated subsection 21(f)(2) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1021(f)(2); 415 ILCS 5/21(f)(2) (West 1992)) and 35 Ill. Adm. Code 725.175 (1992). These violations may recur unless enjoined by this court.

24. By failing to have a written closure plan from the drum storage area's creation until April 9, 1993, and an approved plan until June 10, 1993, Missouri Pacific has violated subsection 21(f)(2) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1021(f)(2); 415 ILCS 5/21(f)(2) (West 1992)) and 35 Ill. Adm. Code 725.212 (1992). These violations may recur unless enjoined by this court.

WHEREFORE, plaintiff, People of the State of Illinois, prays that this court grant the following relief:

A. Enter a finding that the defendant, Missouri Pacific Railroad Company, has violated subsection 21(f)(2) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1021(f)(2); 415 ILCS 5/21(f)(2) (West 1992)), 35 Ill. Adm. Code 725.175 and 725.212 (1992);

B. Enter and issue a permanent injunction enjoining the defendant from further violations of the Act and associated regulations;

C. For each of the violations alleged herein, impose upon the defendant the maximum statutory penalty pursuant to section 42 of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1042; 415 ILCS 5/42 (West 1992));

D. Award plaintiff its costs, including attorney's fees and expert witness fees, pursuant to subsection 42(f) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1042(f); 415 ILCS 5/42(f) (West 1992)); and

E. Enter and issue such additional and further relief as this court deems appropriate under the circumstances.

COUNT V

1-16. Plaintiff realleges and incorporates herein by reference paragraphs 1 through 16 of Count I as paragraphs 1 through 16 of this Count V.

17. During the inspection, the Agency inspector observed that the drums were showing signs of deterioration, and that one of the drums containing PCP-contaminated soil was open.

18. Based upon the Agency's information and belief, Missouri Pacific did not conduct weekly inspections of the drum storage area of the Dupo railyard.

19. 35 Ill. Adm. Code 725.271 (1992) provides:

> "If a container holding hazardous waste is not in good condition or if it begins to leak, the owner or operator must transfer the hazardous waste from this container to a container that is in good condition or manage the waste in some other way that it complies with the requirements of this Part."

20. 35 Ill. Adm. Code 725.273(a) (1992) provides:

> "a) A container holding hazardous waste must always be closed during storage, except when it is necessary to add or remove waste."

21. 35 Ill. Adm. Code 725.274 (1992) provides:

> "The owner or operator must inspect areas where containers are stored at least weekly, looking for leaks and for deterioration caused by corrosion or other factors."

22. By failing to transfer waste from drums in poor condition to drums in good condition, Missouri Pacific has violated subsection 21(f)(2) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1021(f)(2); 415 ILCS 5/21(f)(2) (West 1992)) and 35 Ill. Adm. Code 725.271 (1992). These violations may recur unless enjoined by this court.

23. By failing to close all the drums holding hazardous waste in the drum storage area, Missouri Pacific has violated subsection 21(f)(2) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1021(f)(2); 415 ILCS 5/21(f)(2) (West 1992)) and 35 Ill. Adm. Code 725.273(a) (1992). These violations may recur unless enjoined by this court.

24. By failing to conduct inspections in the drum storage area, Missouri Pacific has violated subsection 21(f)(2) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1021(f)(2);

415 ILCS 5/21(f)(2) (West 1992)) and 35 Ill. Adm. Code 725.274 (1992). These violations may recur unless enjoined by this court.

WHEREFORE, plaintiff, People of the State of Illinois, prays that this court grant the following relief:

A. Enter a finding that the defendant, Missouri Pacific Railroad Company, has violated subsection 21(f)(2) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1021(f)(2); 415 ILCS 5/21(f)(2) (West 1992)), 35 Ill. Adm. Code 725.271, 725.273(a) and 725.274 (1992);

B. Enter and issue a permanent injunction enjoining the defendant from further violations of the Act and associated regulations;

C. For each of the violations alleged herein, impose upon the defendant the maximum statutory penalty pursuant to section 42 of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1042; 415 ILCS 5/42 (West 1992));

D. Award plaintiff its costs, including attorney's fees and expert witness fees, pursuant to subsection 42(f) of the Act (Ill. Rev. Stat. 1991, ch. 111 1/2, par. 1042(f); 415 ILCS 5/42(f) (West 1992)); and

E. Enter and issue such additional and further relief as this court deems appropriate under the circumstances.

Respectfully submitted,

PEOPLE OF THE STATE OF ILLINOIS

JAMES E. RYAN
Attorney General
State of Illinois

MATTHEW J. DUNN, Acting Chief
Environmental Enforcement Division

BY: _____
THOMAS DAVIS, Acting Chief
Environmental Bureau
Assistant Attorney General

Of Counsel
THOMAS DAVIS
ARDC #03124200
Assistant Attorney General
500 South Second Street
Springfield, Illinois 62706
217/782-9031

Dated: 2/07/95
mopacom/jjk

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

DATE: April 14, 1995

TO: Vicky Von Lanken

FROM: Bruce Kugler BAK

RE: Union Pacific Railroad (Missouri)
File No. 418-92
St. Clair County
ILD #984774851

MEMORANDUM

A consent order was filed on March 16, 1995 which resolved all outstanding matters.

This file should be closed.

cc: Linda Cooper

COMPLIANCE UNIT EVALUATION

THERE ARE NO OUTSTANDING RCRA VIOLATIONS. ____

THERE ARE NO OUTSTANDING SOLID WASTE VIOLATIONS ON THE COMPLIANCE UNIT'S TRACKING SYSTEM.* ✓

OUTSTANDING RCRA VIOLATIONS. ✓

OUTSTANDING SOLID WASTE VIOLATIONS.* ____

VIOLATION	EVALUATION DATE	REVIEWER	CIL DATE	PECL DATE	AWN DATE	EDG DATE
703.121(a)	6-23-92	Chris Cahnovsky		7-16-92		7-31-92
725.116(a)						
725.151(a)						
725.155						
725.175						
725.212(a)						
725.271						
728.150(a)(2)						

CURC'S INITIALS [illegible]

DATE 7-23-93

COMMENTS:

*THE COMPLIANCE UNIT HAS BEEN TRACKING SOLID WASTE VIOLATIONS SINCE MARCH 1, 1991. PLEASE CONTACT FOS FOR SOLID WASTE VIOLATIONS PRIOR TO THIS DATE.